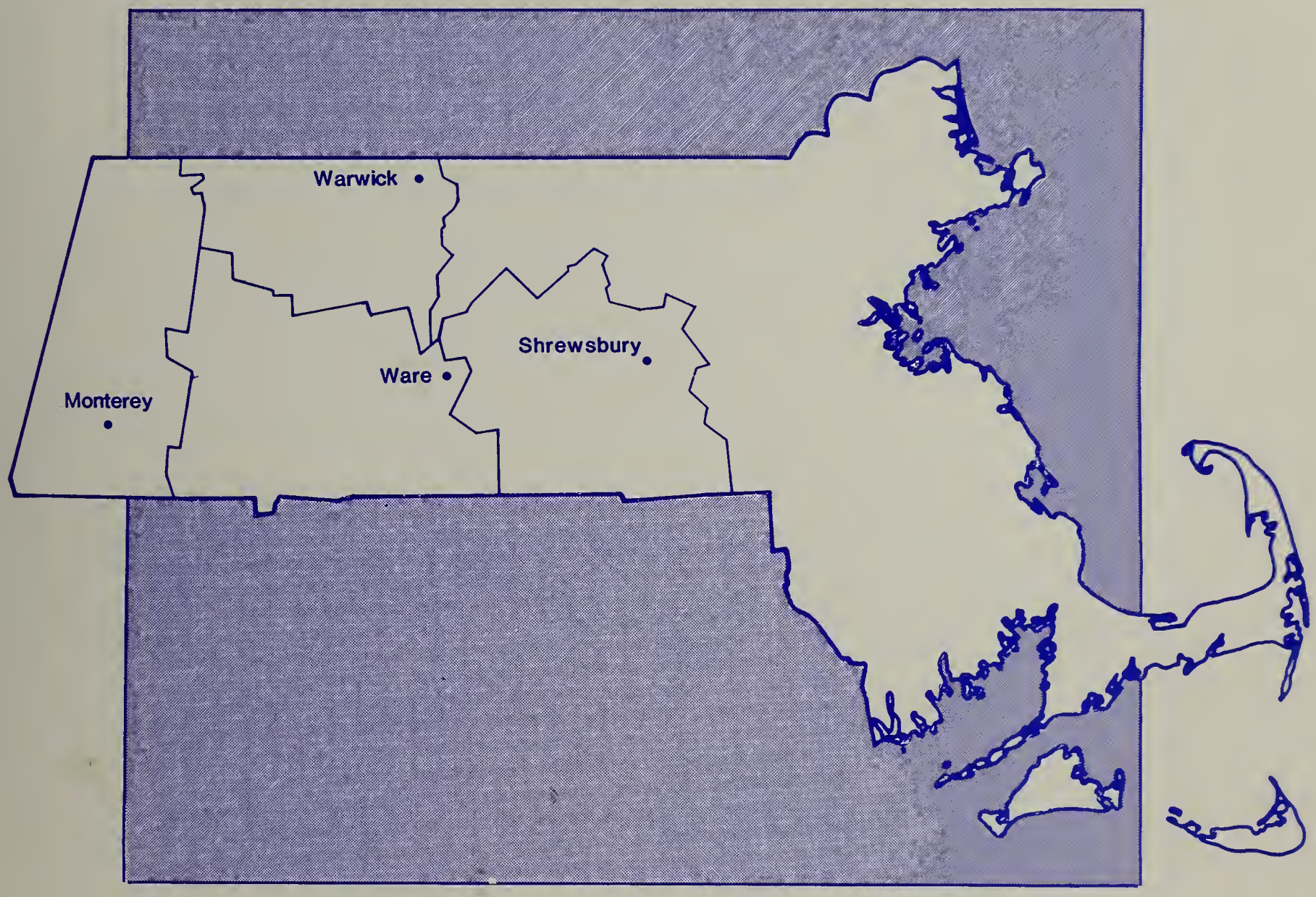
The Impact of State-Owned Land and Facilities on Local Governments

Prepared for
Executive Office of Communities and Development

Requested by
Senator Robert D. Wetmore (D) Barre



Submitted by:

Berkshire County Regional Planning Commission
Central Massachusetts Regional Planning Commission
Franklin County Planning District
Pioneer Valley Planning Commission

June 1987

The Impact of State-Owned Land and Facilities on Local Governments

June, 1987

Prepared for
Executive Office of Communities and Development

Requested by
Senator Robert D. Wetmore (D) Barre

Submitted by

Berkshire County Regional Planning Commission
Central Massachusetts Regional Planning Commission
Franklin County Planning District
Pioneer Valley Planning Commission

The preparation of this report was financed through the State/Regional Grants Program from the Massachusetts Executive Office of Communities and Development.

TABLE OF CONTENTS

ACKNOWLEDGMENTS

This report was funded through the State Regional Planning Grants Program of the Executive Office of Communities and Development, Amy S. Anthony, Secretary. The authors would like to gratefully acknowledge the support received throughout the study from numerous state and local officials, but in particular Senator Robert Wetmore who conceived the need for such a study and was instrumental in securing the necessary funding. Other who provided freely of their time and energy include:

Kathleen Barry Bartolini	EOCD
Michael Reidy	Senator Wetmore's Aide
Tony Hart	DOR
Charles Hoen	DOR
James O'Leary	DOR
Katherine Abbot	DEM
Debra Hall	DCPO
Robert Mealey	MDC
John Shontell	MDC
Beverly Potvin	Holden Assessor
Robert Anderson	Amherst Assessor
Robert Elia	Shrewsbury Assessor

CHAPTER 1
INTRODUCTION

1.1 OVERVIEW

Chapter 763 of the Acts of 1985 established a program of direct state aid to Regional Planning Agencies (RPAs) in the Commonwealth. One special provision of Chapter 763 is that the four RPAs serving Berkshire County, Franklin County, the Pioneer Valley Region and Central Massachusetts Region examine the impacts of State-Owned Land upon the local and regional economy. The Executive Office of Communities and Development (EOCD), authorized by the statute to administer this state aid, subsequently established the State Regional Planning Grants Program within its Office of Local and Regional Planning to implement the intent of this legislation. EOCD, the four RPAs, and Senator Robert D. Wetmore (D), Barre, the principal sponsor of this bill, have worked together to design this study, in order that the four RPAs might most effectively meet the requirements of the law.

The specific tasks required by Chapter 763 include:

A. An inventory of state facilities and the state-owned land in each community.

B. A detailed analysis of the impact which the state facility or state-owned land has upon:

   (1) the economic conditions of the member community

   (2) the reduced potential for economic development available to the private sector in each member community

   (3) the infrastructure needs and public sector delivery needs of each member community

   (4) the lost tax revenue accruing to each member community and

   (5) the economy of the region served by the planning agency

To prepare a work program based on those statutory tasks and acceptable to EOCD, a meeting was held with the four RPA directors, EOCD personnel, and the staff of Senator Wetmore. At the time, it became clear that a principal issue driving this study was whether cities and towns in the Commonwealth are adequately compensated by the State for state use and ownership of property within their community. Communities that host state land and facilities are often required to provide municipal services, yet it is unknown if the in lieu

of tax payments received are sufficient to reimburse those costs. In addition, communities lose the opportunity to devote the land to other tax-generating uses.

To address these issues, this study focused on examining the costs of providing services to the sites compared to the revenue received from the state, and on quantifying the opportunity costs associated with the land and facilities remaining in state ownership. Since the funds available for Fiscal Year 1987 were insufficient to accomplish the full breadth of this effort in each region, it was agreed that the study would focus on developing a detailed method for examining the economic impacts of state-owned land upon a community, and testing this procedure on sample communities. An amended scope based on these objectives was developed for the RPA Grant Program.

The four regional planning agencies have cooperated closely to accomplish these objectives. The interim report jointly submitted on December 30, 1986 by the agencies reviewed progress and identified sources of information on state-owned land. Over the following months, the agencies held numerous meetings to review sources of inventory information and assess their reliability and completeness, and to design appropriate methodologies to assess economic impacts of the state-owned land. The agencies also developed cost estimates for conducting an inventory of state-owned land, which were presented along with the proposed methodology to Senator Wetmore, his aide, an aide to Senator Webber and EOCD officals on a May 20, 1987 progress report meeting. The direction of this methodology and proposed contents of this final report were reviewed and approved at this meeting.

1.2 SCOPE OF THE STUDY

The inventory portion of this study focused on two main objectives:

(1) To identify and collect samples of all known and potential sources of data relevant to state-owned land and facilities, and to assess their accuracy and applicability.

(2) To conduct a detailed study of chosen sample communities to evaluate the inventory method.

This report describes the data sources identified, their strengths and shortcomings, and the contact agency for obtaining the data. Collection of data for the case studies tested these sources and revealed discrepancies. Through this process, the RPAs also developed methods for identifying and resolving such discrepancies.

The economic analysis portion of this study develops methods to evaluate the adequacy of reimbursements the state makes to communities for state-owned land. Methods to quantify costs of service to state facilities and a method to evaluate the potential economic opportunities of private development on vacant state land are developed. Each regional planning agency chose a sample community and, based on community characteristics and use of land, chose a methodology to test the economic impacts the state-owned land has on the host community. Results are presented in case studies. Finally, the manner in which the in-lieu-of tax payments are calculated is discussed, and solutions are presented to achieve greater equity and consistency for all state-owned lands across the Commonwealth.

CHAPTER 2
INVENTORY OF STATE OWNED LAND

2.1 DATA SOURCES

A major component of The State-Owned Land Facilities Project was to identify data sources and retrieve the relevant data from those sources. Data collection began in August 1986 and has continued through May 1987. Sources of data have come from all levels of government and the private sector, i.e., Federal (Soil Conservation Service); State (Department of Environmental Management, Department of Revenue, Division of Capital Planning and Operations, University of Massachusetts at Amherst and the Metropolitan District Commission); Local (local assessors, fire, police and school departments) and private (real estate agencies). As the data was collected and analyzed it was noted that many discrepancies existed among the different data sources. Sources of data, contents, problems and ways to receive data are presented below:

Department of Environmental Management (DEM)

A copy of the Outdoor Recreation and Open Space Inventory (SCORP) Report for DEM Region 4 was obtained from the Executive Office of Environmental Affairs computer in August 1986. The SCORP report gives a site by site analysis of open space and recreation locations stating owner, administrator, uses, size, location and other facts. This report has been set up to give information about the site thus when a site is located in two or more communities the total acreage is shown only in the lead community thus leading to possible misreading the information, another problem with the report is the information in the past has been collected unsystematically by DEM field employees during "off peak" times and may not result in a high degree of accuracy in the final report. The data collection and report in the future will be conducted by students and faculty of the Landscape Architecture and Regional Planning School at the University of Massachusetts, Amherst. The first report out of the university should be in the summer of 1988. Katherine Abbott, Senior Planner of DEM's Office of Planning and Development (617-727-3160) is the contact person for this document.

Division of Capital Planning and Operations, Office of Real Property

In 1982, the Real Property Office went to all assessors' offices in the Commonwealth and retrieve information on state-owned land from assessor cards. This report, on paper

copy, details the tract or facility name, location, size assessed value of land, land use, land type, topography, land zoning classification, number of buildings, assessed value (land and buildings), utilities, proximity to infrastructure, assessor numbers and registry of deed numbers on each parcel. The Office of Real Property is also the state agency that is resonsible for all purchases of real property. These records are kept on computers. The complete data bank should be computerized for ease of access and to allow a cross reference with local assessors records in order to flag discrepancies, of which there are many, and correct them. The computer printout should also be in a user friendly format. This can not be accomplished until funding is increased for data entry in the Office of Real Property. Debra Hall, Deputy Director, Division of Capital Planning and Operations, Office of Real Property, 1 Ashburton Place, Boston MA 02187 (617-727-0468) is the contact person at the Office of Real Property.

Department of Revenue, Municipal Data Bank

Department of Revenue has produced a series of Municipal Data Bank Reports for all communities in the Commonwealth. These reports contain a wide variety of current fiscal data; The reports include: Municipal Profile; Municipal Revenues and Expenditures; Municipal Tax Base and Indebtedness; Municipal Cherry Sheet and Tax Recap Summary; County Receipts, Payments and Debt; and Municipal Index and Ranking. These reports also contain past data on each community plus current data on similar communities for comparison. The raw data may be a little hard to understand for those not familiar with state and community finances, but definitions and explanations are helpful. The information from these reports is vital to the alternative use (residential) described in section 4.1 (Case Study: Ware). James O'Leary, Data Bank Administrator, Municipal Data Bank, Department of Revenue, 100 Cambridge Street, Room 605, Boston MA 02204 (617-727-9260) can be contacted for this information.

Department of Revenue, Local Assessors Bureau

The Local Assessors Bureau keeps a current listing of "State and County-Owned Land Valuation". This list has site name, managing agency, acreage, value per acre and total value. The value is determined by state appraisers. This list only covers land that is reimbursed by state. This report can be obtained by contacting Tony Hart, Local Assessors Bureau, Department of Revenue (617-727-4217).

Local Assessors, each community

Each parcel located in a community is shown on an assessors card at the local assessors office. Information includes: size and location of parcel, frontage, if a structure exists (size and value), land value, owner, plus additional information on a town-by-town basis. Assessors' offices also keep a wide variety of fiscal information for their community. The quality of local assessor records depends upon good maintenance which varies from municipality to municipality and, since state lands are tax exempt, information on these lands may be sketchy. Many communities, lacking professional staff, hire consultants to update maps and records on a periodic time table. Contact for this data is the local assessors' office.

2.2 DATA CONFLICTS AND RESOLUTIONS

Many of the data conflicts are caused by the various methods of data collection used by the different groups. A prime example of this exists in Ware. The inventory of state-owned land conducted in 1987 reveals that the Town of Ware Assessors' records list 2,874.53 acres; a letter from the local board of assessors dated December 9, 1982 to the Division of Capital Planning and Operations indicates 1,753.22 acres; the Department of Environmental Management 1983 SCORP publication had 334 acres (section 2.1 DEM); the Division of Capital Planning and Operations 1981 Annual Statement of Real Property showed 8,544.6 acres, and in their 1983 files, collected from the local assessors' office, they show 1,757.75 acres of land owned by the Commonwealth in Ware. As can be seen there is a wide variation in the acreages of state-owned land by different state agencies. These differences range from the DEM report showing 1.31% of the town land held by Massachusetts, to the Division of Capital Planning and Operations 1981 Annual Statement having 33.56% of town land held by the Commonwealth. These types of discrepancies will lead to an administrative nightmare for both state and local governments and to possible legal challenges. To resolve this problem all data collection and dissemination agencies (i.e. State, Local and Regional Planning Agencies) must meet to review collection methodologies and seek to devolop a standard collection format and policy. The regional planning agencies can play a significant role in solving the problem. Section 2.4 will discuss the RPA role in more detail.

Deed research, reviewing the history of a parcel of land, may have to be part of the solution. This process is labor intensive, and thus the cost to perform such action will be expensive. Plus, if the researcher is not familiar with the Registry of Deeds format, time and cost will be added to the project. As an alternative title companies can be hired to do

the research and give a quick and accurate report of the conveyance of the land in question.

2.3 MAPPING

Maps in any planning process can be a most effective tool. They portray information that is easily understood by both the professional and nonprofessional planner.

Maps on state-owned land can be obtained from sources at state (administering agency) and local (assessors' or planning office) level of government. An additional source is if a community has contracted with a private consultant to maintain maps. Costs to obtain maps vary from being free (may have to trace land holdings) to over $100.00 for a complete set of tax maps.

Even though maps are a great planning tool tax maps are not without problems. Some of these problems are stated below.

1. Maps are located at one of two sources
   A. the local assessors' office, or
   B. a private consultants' office, hired by the community to create and/or maintain the maps.

2. Scales of maps vary

3. Communities do not always conform to Department of Revenue specifications, thus features and coding of data varies

4. Geography of land (size and/or shape) does not always conform to tabular data as is the case in Ware

5. Although it is not openly discussed, when a property line dispute exists many times the adjustment is done to the state land holdings.

If mapping is to be conducted as part of the inventory and analysis of state-owned lands it must be done at two different scales.

1. To show land in comparison to the host community the land will need to be plotted on the Department of Public of Works General Highway Maps at the scale of 1" = 1000'. These maps are used to show access, service availability, etc. but should not be used as a legal document.

2. The second set of maps should conform to the Department of Revenues, "Guidelines for Tax Mapping"

release no. 82-403, see appendices. These maps are to be used for site planning and evaluation purposes.

With the Executive Office of Environmental Affairs now being the lead agency producing a state wide geographical information system, it is an ideal time to link with them to map these lands on computers. The Pioneer Valley Planning Commission has recently purchased a digitizer and plotter and plans to enter into the field of computer assisted mapping.

2.4 POSSIBLE REGIONAL PLANNING AGENCY ROLE

An RPA, if funded (see section 5.1 for cost estimates), is the ideal agency to do data collection and analysis. The RPA's for years have been collecting and analyzing data, and can bring together parties when problems need to be solved.

The local RPA can analyze data collected for accuracy, and if any discrepancies, exist they can be flagged and a plan implemented to resolve the problem. This plan involves:

1. looking for transcription errors, if none
2. contact agencies, community and private citizens involved to inform of the conflicts and if need be arrange a meeting, if this does not succeed
3. it will be recommended that the land have a deed research conducted, with the last resort being
4. having the property surveyed

Thus the best role for the RPA is to collect and analyze information, flag discrepancies and if need be act as a liaison between disagreing parties.

TABLE 1

COMPLETE LISTING OF WARE STATE OWNED LAND
DATA FROM WARE ASSESSORS OFFICE
****

PVPC ID	MAP NO.	PARCEL NO.	STREET	OWNER	VALUE 1986 LAND	VALUE 1986 BUILDINGS	ACRES	COMMENTS
	30	38	GILBERTVILLE	DPW	$7,400	$1,200	0.72	SHED ON LAND
SUMMARY OF DPW					$7,400	$1,200	0.72	NUMBER OF PARCELS: 1
				E.O. TRANS. AND CO	$6,500		1.02	CAN NOT CONFIRM LOCATION
	57	172	GILBERTVILLE RD	E.O. TRANS. AND CO	$3,400		0.13	
SUMMARY OF E.O. TRANS. AND CONST					$9,900		1.15	NUMBER OF PARCELS: 2
	3	8	BONDSVILLE RD	FISHERIES AND WILD			20.00	NO VALUES GIVEN
	3	9	BONDSVILLE RD	FISHERIES AND WILD			4.20	NO VALUES GIVEN
	3	10	BONDSVILLE RD	FISHERIES AND WILD			205.00	NO VALUES GIVEN
	7	1	BONDSVILLE RD	FISHERIES AND WILD			2.10	NO VALUES GIVEN
	7	1	BONDSVILLE RD	FISHERIES AND WILD	$350,000	$38,000	300.00	
	19	1	RIVER RD	FISHERIES AND WILD			21.10	NO VALUES GIVEN
	19	1	RIVER RD	FISHERIES AND WILD	$416,700		34.00	
	19	4	RIVER RD	FISHERIES AND WILD			18.00	NO VALUES GIVEN
SUMMARY OF FISHERIES AND WILDLIFE					$766,700	$38,000	604.40	NUMBER OF PARCELS: 8
			BELCHERTOWN RD(cemetery)	MDC	$18,300		25.00	NO MAP OR PARCEL GIVEN (cemetery)
				MDC	$863,500		795.00	NO MAP OR PARCEL
	7	5	BONDSVILLE RD	MDC			22.00	NO LAND OR BUILDING VALUES GIVEN
	25	18	RIVER RD	MDC			28.00	NO LAND OR BUILDING VALUES GIVEN
	64	1		MDC	$4,900		0.05	JOHNSON TRACT
	64	1		MDC	$5,900		0.06	ADELARD TRACT
	64	1		MDC	$100		0.09	VADNAIS TRACT
	64	1		MDC	$11,300		0.12	JOHNSON TRACT
	64	1		MDC	$11,600		0.13	BRASSARD TRACT
	64	1	ROUTE 9	MDC	$11,700		0.13	TAKEN FROM DPW
	64	1		MDC	$12,000		0.15	PISARCZYK TRACT
	64	1		MDC	$12,000		0.15	BONDSVILLE REALTY TRACT
	64	1		MDC	$14,400		0.25	BONDSVILLE REALTY LAND
	64	1		MDC	$16,900		0.44	ADELARD TRACT
	64	1		MDC	$16,900		0.44	PISARCZYK TRACT

PVPC ID	MAP NO.	PARCEL NO.	STREET	OWNER	VALUE 1986 LAND	BUILDINGS	ACRES	COMMENTS
	64	1	UNKNOWN PUBLIC RD	MDC	$17,300		0.64	PARCEL #9
	64	1	UNKNOWN PUBLIC ROAD	MDC	$20,100		1.14	PARCEL #12
	64	1	UNKNOWN PUBLIC RD	MDC	$21,060		1.40	PARCEL #6
	64	1		MDC	$23,000		1.95	HANDZEL TRACT
	64	1		MDC	$23,100		1.96	PISARCZYK TRACT
	64	1	UNKNOWN PUBLIC RD	MDC	$23,700		2.15	PARCEL #4
	64	1		MDC	$23,900		2.20	ADELARD TRACT
	64	1		MDC	$27,300		3.13	CHICOPEE VALLEY AQUADUCT
	64	1		MDC	$47,900		18.20	FORMERLY B&ARR
	64	1	QUABBIN RESEVIOR	MDC	$1,635,000		1359.80	
SUMMARY OF MDC					$2,861,860		2,264.58	NUMBER OF PARCELS: 25
	52	1	WEST AND GOULD RD	NATIONAL GUARD ARM	$34,300	$221,100	3.50	
SUMMARY OF NATIONAL GUARD ARMORY					$34,300	$221,100	3.50	NUMBER OF PARCELS: 1
TOTAL					$3,680,160	$260,300	2874.35	NUMBER OF PARCELS: 37

PREPARED BY PIONEER VALEY PLANNING COMMISSION

TABLE 2

COMPLETE LISTING OF AMHERST STATE OWNED LAND
DATA FROM AMHERST ASSESSORS OFFICE
****

PVPC ID	MAP NO.	PARCEL NO.	STREET	OWNER	VALUE 1986 LAND	VALUE 1986 BUILDINGS	ACRES	COMMENTS
	16B	5		DEM	$250,700		44.10	
	25C	10	WEST ST	DEM	$98,600		7.30	
	25D	14	BAY RD	DEM	$36,100		31.00	
	28A	5	WEST ST	DEM	$13,300		1.00	
	30B	57	BAY RD	DEM	$900		0.07	
	SUMMARY OF				$399,600		83.47	NUMBER OF PARCELS: 5
A	30A	58	BAY RD	DEM	$52,200		34.72	
A	30A	110	BAY RD	DEM	$30,000		19.90	
A	30A	112	BAY RD	DEM	$173,600		79.80	
A	30B	1	BAY RD	DEM	$26,800		17.80	
A	30B	15	HARRIS RD	DEM	$405,100		103.41	
	SUMMARY OF A				$687,700		255.63	NUMBER OF PARCELS: 5
B	30A	111	BAY RD	DEM	$22,600		15.00	
	SUMMARY OF B				$22,600		15.00	NUMBER OF PARCELS: 1
C	26D	147	BAY RD	DEM	$5,400		3.50	
C	29B	20	BAY RD	DEM	$8,200		5.40	
C	29B	21	BAY RD	DEM	$27,100		18.00	
C	29B	27	BAY RD	DEM	$11,700		7.70	
C	29B	34	BAY RD	DEM	$109,600		73.00	
C	29B	35	BAY RD	DEM	$12,100		8.00	
C	29B	36	BAY RD	DEM	$13,900		9.18	
C	29B	37	BAY RD	DEM	$17,200		11.40	
C	29D	29	OFF BAY RD	DEM	$27,100		18.00	
	SUMMARY OF C				$232,300		154.18	NUMBER OF PARCELS: 9
D	25D	17	BAY RD	DEM	$6,300		4.15	

PVPC ID	MAP NO.	PARCEL NO.	STREET	OWNER	VALUE 1986 LAND	VALUE 1986 BUILDINGS	ACRES	COMMENTS
D	26A	143	BAY RD	DEM	$412,200		204.30	
D	28B	23	BAY RD	DEM	$15,700		10.38	
D	28B	24	BAY RD	DEM	$52,000		34.62	
D	29A	6	WEST ST	DEM	$10,300		6.80	
D	29A	7	BAY RD	DEM	$9,800		6.50	
D	29A	10	BAY RD	DEM	$5,000		3.30	
D	29B	15	BAY RD	DEM	$13,400		8.84	
D	29B	33	BAY RD	DEM	$11,200		7.40	
	SUMMARY OF D				$535,900		286.29	NUMBER OF PARCELS: 9
E	25C	31	WEST ST	DEM	$84,200		13.70	
E	25C	32	BAY RD	DEM	$38,400		21.30	
E	28A	3	51 MILITARY RD	DEM	$36,500	$30,400	15.60	SINGLE FAMILY @ GARAGE
	SUMMARY OF E				$159,100	$30,400	50.60	NUMBER OF PARCELS: 3
F	28A	6	WEST ST	DEM	$51,300		3.80	
F	28B	5	WEST ST	DEM	$179,100		13.16	
F	28B	7	WEST ST	DEM	$14,000		1.03	
F	28B	13	WEST ST	DEM	$38,500		25.60	
F	28B	14	WEST ST	DEM	$7,500		4.90	
F	28B	19	BAY RD	DEM	$4,300		2.90	
F	28B	20	BAY RD	DEM	$12,300		8.11	
F	28B	25		DEM	$69,700		46.40	
F	28B	8	WEST ST	DEM	$12,600		0.93	
	SUMMARY OF F				$389,300		106.83	NUMBER OF PARCELS: 9
G	08A	4	922 NORTH PLEASANT ST	U OF MASS	$162,000		6.76	
G	08A	5	NORTH PLEASANT ST	U OF MASS	$27,100		3.78	
	SUMMARY OF G				$189,100		10.54	NUMBER OF PARCELS: 2
H	05C	11	1004 NORTH PLEASANT ST	U OF MASS	$225,700		31.73	THIS MAYBE NORTH VILLAGE APTS.
H	07B	3	MEADOW ST	U OF MASS	$400		1.03	
H	07B	4	MEADOW ST	U OF MASS	$200		0.52	
H	08A	68	961 NORTH PLEASANT ST	U OF MASS	$217,600		18.36	
H	08A	69	NORTH PLEASANT ST	U OF MASS	$63,500		2.55	

PVPC ID	MAP NO.	PARCEL NO.	STREET	OWNER	VALUE 1986 LAND	BUILDINGS	ACRES	COMMENTS
H	08A	70	911 NORTH PLEASANT ST	U OF MASS	$318,200	$92,600	23.00	WYSOCKI HOUSE
H	08A	73	939 NORTH PLEASANT ST	U OF MASS	$32,700		0.60	
H	08A	76	NORTH PLEASANT ST	U OF MASS	$7,400		2.92	
H	08C	2	EAST PLEASANT ST	U OF MASS	$4,121,300		286.16	WHITMORE ADMIN. BLDG. (PLUS)
H	08C	3	WEST OF NORTH PLESANT	U OF MASS	$2,121,200		298.24	
H	08C	4	FARVIEW WAY	U OF MASS	$31,500		1.25	MAY CONTAIN A STRUCTURE
H	08C	13	EAST PLEASANT ST	U OF MASS	$428,400		83.06	
H	08D	3	505 EAST PLEASANT ST	U OF MASS	$156,000	$93,100	14.46	SINGLE FAMILY HOUSE
H	08D	15	EAST PLEASANT ST	U OF MASS	$81,500	$26,600	8.80	SINGLE FAMILY HOUSE (PLUS)
H	11A	1	POKEBERRY RIDGE	U OF MASS	$4,200		1.60	
H	11A	3	COMMONWEALTH AVE	U OF MASS	$1,400		0.03	
H	11B	2	POKEBERRY RIDGE	U OF MASS	$2,600		0.99	MAY CONTAIN A STRUCTURE
H	13B	2	421 AMITY ST	U OF MASS	$30,900	$31,700	0.86	SINGLE FAMILY HOUSE (SHED @ POOL)
H	13B	14	425 AMITY ST	U OF MASS	$29,000	$26,200	0.70	SINGLE FAMILY HOUSE
	SUMMARY OF H				$7,873,700	$270,200	776.86	NUMBER OF PARCELS: 19
I	08A	75	VALLEY ROAD	U OF MASS	$26,900		0.70	
	SUMMARY OF I				$26,900		0.70	NUMBER OF PARCELS: 1
J	08A	29	FAIRFIELD	U OF MASS	$29,300		0.98	
	SUMMARY OF J				$29,300		0.98	NUMBER OF PARCELS: 1
K	08A	46	79 OLD TOWN RD	U OF MASS	$113,700	$64,600	6.15	GARAGE @ BARN
	SUMMARY OF K				$113,700	$64,600	6.15	NUMBER OF PARCELS: 1
L	12B	9	NORTH EAST ST	U OF MASS	$122,100		45.00	
	SUMMARY OF L				$122,100		45.00	NUMBER OF PARCELS: 1
	TOTAL				$10,781,300	$365,200	1,792.23	NUMBER OF PARCELS: 66

PREPARED BY PIONEER VALEY PLANNING COMMISSION

TABLE 3

AMHERST SUMMARY OF STATE OWNED LANDS
POTENTIALLY DEVELOPABLE LAND BY SOIL CHARTERISTICS
****

PVPC ID	ADMIN. AGENCY	TOTAL ACRES	DEVELOPABLE ACRES NO.	DEVELOPABLE ACRES %	NON-DEVELOPABLE ACRES NO.	NON-DEVELOPABLE ACRES %	VALUE 1986 LAND	VALUE 1986 BUILDING	FRONTAGE
A	DEM	255.63	60.63	23.7%	195	76.3%	$687,700		BAY RD AND HARRIS MOUNTAIN RD
B	DEM	15	0	0 %	15	100%	$22,600		NONE
C	DEM	154.18	48.1	31.2%	106.08	68.8%	$232,300		NONE
D	DEM	286.29	80.03	28.0%	206.26	72.0%	$535,900		BAY RD
E	DEM	50.6	4.5	8.89%	46.1	91.1%	$159,100	$30,400	MITITARY RD
F	DEM	106.83	11.21	10.5%	95.62	89.5%	$389,300		WEST ST AND OLD ST RAILWAY
SUMMARY OF: DEM		868.53	204.47		664.06		$2,026,900	$30,400	
G	U OF MASS	10.45	2.8	26.8%	7.65	73.2%	$189,100		NORTH PLEASANT STREET
H	U OF MASS	776.86	627.56	80.8%	149.3	19.2%	$7,873,700	$270,200	AREA SERVED BY MANY ROADS
I	U OF MASS	0.7	0.7	100 %	0	0%	$26,900		VALLEY RD
J	U OF MASS	0.98	0.98	100 %	0	0%	$29,300		FAIRFIELD ST
K	U OF MASS	6.15	6.15	100 %	0	0%	$113,700		OLD TOWN ROAD
L	U OF MASS	45	45	100 %	0	0%	$122,100		NORTH EAST ROAD
SUMMARY OF: U OF MASS		840.14	683.19		156.95		$8,354,800	$270,200	
SUMMARY OF STATE OWNED LANDS		1708.67	887.66		821.01		$10,381,700	$300,600	

PREPARED BY PIONEER VALLEY PLANNING COMMISSION

CHAPTER 3
ECONOMIC ANALYSIS

3.1 INTRODUCTION

A community provides a variety of services to state lands and facilities, such as police and fire protection and street maintenance, but state properties are exempt from local property taxes. For private property, a community sets a tax rate per $1,000 of assessed valuation to earn the tax monies it needs to support its operations, from education of its children to social services for its senior citizens. Thus, the more valuable a piece of property, (land and buildings included) the higher the taxes the property owner is required to pay. It is often true that a landowner pays for services for which he receives no direct benefit. A clear example would be an industrial property paying taxes to support the local school system, although the industry contributes no children directly to the public schools.

While the state does not pay "taxes" to the community it does, in fact, provide a great deal of local aid via various formulas and grant programs which help to fund local activities. (There are other tax-exempt uses, such as churches and non-profit organizations which also do not pay local property taxes or state and federal income taxes.) Apparently there has never been no attempt to quantify the specific costs state lands and facilities impose upon their host communities. One important task of this study was to develop a methodology that could be used to determine in an objective manner the costs to the community for servicing such properties.

The Commonwealth has developed a procedure for making an in-lieu-of-tax payment to the host community for state property to at least reimburse some of the costs imposed. It is not the purpose of this study to weigh the merits of this program but rather to assume the state will continue its policy in some form for reimbursing communities when it owns land or develops facilities. In fact, knowing the amount of the reimbursement, and by computing the costs imposed, it will be possible to determine whether the compensation received is adequate to cover the community's costs.

The next section describes the current methods used to calculate the reimbursement for state and MDC properties. This will be followed by an evaluation of the strengths and weaknesses of these methods with several possible changes outlined which can help to make the reimbursement procedure more equitable. The report then turns to a discussion of the state-of-the-art in fiscal impact analysis with several methods critiqued for applicability to this study. Then, since fiscal impacts vary depending upon the type of facility

being examined, several case studies are presented which can serve as examples for determining the costs state facilities impose upon their host communities.

3.2 State Reimbursement Policy

In order to gain a good grasp of the economic impacts of state lands and facilities it is first helpful to understand the current practice of reimbursing communities for hosting these properties. One reason for the reimbursement seems to be the state's desire to compensate municipalities for the costs they incur in servicing these lands. And secondly, there seems to be a recognition that taking these lands off the tax rolls would place an unfair burden upon the private taxpayers of the community by subsidizing state operations.

This section will examine the procedures adopted in state law for making in-lieu-of-tax-payments for state facilities and for MDC properties. Reimbursement for state lands are governed by M.G.L. Chapter 58 Sections 13-17B. Calculations are performed by the Bureau of Local Assessment within the Department of Revenue (DOR). Those specific lands affected by this statute are shown in Table 4.

Table 4

Lands Subject to Reimbursement (M.G.L. Ch. 58 S. 13)

1. Fish hatchery
2. Game preserve or wildlife sanctuary
3. State military campground
4. The Soldiers' Home in Massachusetts
5. The Soldiers' Home in Holyoke
6. A State forest
7. The University of Massachusetts
8. Department of Correction
9. Department of Education
10. Department of Mental Health
11. Department of Mental Retardation
12. Department of Public Health
13. Department of Public Welfare
14. Department of Youth Services
15. Wachusett Mountain State Reservation
16. Mount Greylock State Preservation
17. Department of Environmental Management (land used for recreational or conservation purposes)
18. Land held by county commissioners for hospital purposes
19. Land held by Department of Public Works for use as a solid waste disposal facility.

First, the fair cash value of the land is calculated. It is important to note that reimbursements are based on land values only; the value of internal improvements such as roads and buildings are not usually included in estimating the fair cash value of property. A community's cost will obviously be higher if it must provide services to a state facility than if only vacant land is involved. Since reimbursements do no increase when state properties are developed there is then a disincentive for a community to host a state facility.

Payments are based upon the following formula:

Payments = Fair Cash Value x Average Statewide Tax Rate for the Preceding 3 Years

The fair cash value of the land is determined every five years, most recently in 1985. A fair and impartial procedure has been developed to execute this requirement given the abundance of state lands in all cities and towns. First, an appraiser examines those uses allowed by the local zoning by-law or ordinance. If no zoning is in affect, or if the property is zoned for governmental uses, the use most characteristic of the surrounding property is selected as the type of use that would otherwise be developed on the property. DOR then obtains from the relevant agency a description of the physical characteristics of the property and what utilities, if any, are available at the site. Based upon the land's character and zoning requirements, the property that fronts only on existing public streets is subdivided into lots. For example, if a town had a 150' frontage requirement, and a parcel of state-owned land had 450' of frontage, there could be three frontage lots created out of that property. The appraiser then obtains comparable sales data of vacant land in that community upon which to base a value of the frontage lots. If a property has internal roads owned solely by the state, such land is not subdivided for calculating the number of potentially available lots. For rear property not fronting on public ways, a determination of value is derived based upon the land's physical characteristics and comparable sales.

An example may help to clarify this procedure. Records from the 1985 valuation were obtained from the DOR for the 334 acre Swift River Wildlife Management Area of the Division of Fisheries and Wildlife, within the town of Ware in eastern Hampshire County. Since the town had not adopted a zoning by-law at that time (one is now in effect) DOR assumed lot sizes of 25,000 square feet and frontage of 200 feet. The number of developable lots is shown below:

East Side of River Rd. - 4000' developable frontage	= 20 lots
Old Belchertown Road - 800' developable frontage	= 4 lots
Ware Road - 400' developable frontage	= 2 lots
West Side of River Road - not developable	= --
TOTAL	26 lots

No detailed survey has been made of this property, and the subdivision of land shown is based upon the appraiser's estimates. As one can see, the amount of frontage appears approximate, and more detailed information on this property would result in a more precise estimation of the number of potential lots for this property.

The determination of fair cash value of the entire 334 acres was made based upon the likely selling price of each lot and an appraised value per acre of dry and wet rear land; a residual, a standard practice of the appraising industry, is then applied depending upon the size of the parcel in question. For the Ware property, a value of $416,700 was derived in the following manner:

14.92 ac.- 26 Developable lots x $10,000/lot x .99	= $257,400
223.33 ac.- Rear land, dry x $700/ac. x .96	= 150,098
95.72 ac.- Rear land, wet x $100/ac. x .96	= 9,189
334.0 ac. Fair Cash Value	= $416,689
Rounded	= $416,700

The second component of the formula for calculating the reimbursement is the average statewide tax rate for the preceding three year period. M.G.L. Chapter 63, Section 58 defines the manner in which the average statewide tax rate is calculated as "...an apportionment of the whole amount of money to be raised by taxation upon property in the Commonwealth during each of the said three years, as returned by the assessors of the several towns...upon the aggregate valuation of all towns for each of the said three years..."

Again using the Ware property as an example the reimbursement given to the town based upon the formula is shown in Table 5. The payments are shown for: 1. 1980, a year in which the valuation took place; 2. 1984, the last year of the five-year cycle; 3. 1985, the year the most recent valuation took place; and 4. 1986, the last year for which the records are available.

Table 5

Swift River Reimbursement Calculation

Year	Fair Cash Value	Ave. State Tax-Rate Preceding 3 Years	Maximum Reimbursement
1980	$128,000	$54/1,000	$ 6,912.00
1984	128,000	32/1,000	4,096.00
1985	416,700	21/1,000	8,750.70
1986	416,700	19/1,000	7,917.30

The last column shows the amount of reimbursement Ware was entitled to receive using this formula. In fact, since 1985 this program has not been fully funded, and a freeze, or cap, of $14.7 million has been imposed for total in-lieu-of-tax payments for all state properties. DOR distributes these available funds proportionately across the state.

A local Board of Assessors may appeal the determination of value to the Appellate Tax Board within thirty days after the date of notice of reimbursement is sent by DOR to the town. A phone call to the Appellate Tax Board revealed that very few appeals under this procedure are actually heard by that board, with most disputes being resolved through direct negotiations between DOR and the community. The burden of proof is on the community to demonstrate that the fair cash value determination by DOR is inordinately low; for example, a community must try to prove that the number of potential lots is wrong, or that the values assigned to either the frontage or rear property is inconsistent with sales data collected by the local officials. No appeal is allowed on grounds of a community's cost to service a state facility.

A number of other points are relevant to this reimbursement policy. If private land is acquired during the intervening five-year period, DOR adopts the locally assessed valuation of the land for purposes of reimbursement until the next five-year valuation takes place. When land is acquired which was exempt from local taxation at the time of its acquisition, the property is not included in any future determination of value. And finally, if a State parcel has frontage on the ocean or a pond, additional developable lots may be allocated along the shore front, with higher values attributed to such lots because of their waterfront location.

The preceding section has described the method by which DOR calculates the in-lieu-of-tax payment for those properties subject to reimbursement listed in Table 4. Property held by a city, town or district in another city or town for water supply purposes is governed by M.G.L. Chapter 59 Sections 5D - 5G. This study is considering land held by the Metropolitan District Commission (MDC) as state land, and the

procedures used to calculate reimbursements are described below.

For the purposes of reimbursement there are two categories of MDC lands: the Quabbin and Ware River Watershed lands, and all other MDC properties. In 1984 the Legislature re-organized the functions of the MDC, and created a separate Massachusetts Water Resources Authority (MWRA) which assumed the water and sewer works functions of the MDC, while the MDC retained its watershed land and park land responsibilities.

Section 40A of Chapter 372 of the Acts of 1984 (which act created the MWRA) created a separate procedure for lands of the MDC in the cities and towns for the Quabbin and Ware River watersheds. Section 40A is now incorporated in the General Laws as Chapter 59, Section 5G.

Section 5G sets up a two-tiered procedure for the towns of the Quabbin Reservation, including Belchertown, Hardwick, New Salem, Pelham, Petersham and Ware. Land in those communities formerly in the discontinued towns of Dana, Greenwich, Enfield, and Prescott, are allocated not less than $50,000 with each town receiving an amount in proportion to the acreage above the high water mark; for example, if one town contained 20% of the lands in the discontinued towns now above the high water mark, it would receive 20% of $50,000 or $10,000.

Reimbursement for other MDC property in the Quabbin and Ware River watersheds is calculated in a manner similar to the fair cash value approach discussed previously. That is, the fair cash value of the land (excluding buildings) is calculated according to the provisions of M.G.L. Ch. 58, Sections 13-17. In this case, the local tax rate is applied to the fair cash value to determine the amount of the reimbursement. In no event shall a city or town receive an amount less than the payment from the MDC in the prior fiscal year. And when a city or town conducts a general revaluation of all its real property the valuation of the MDC land shall be determined by the DOR as of January first in the year succeeding the revaluation and in every fifth year thereafter so that the payment remains substantially the same as that made prior to the revaluation. This approach insures that the community receives an amount equivalent to that which it would receive in taxes (since watershed lands generally contain no structures), and four times in the first paragraph it is stated that the payment for any year may not be less than the preceding year.

The payments received by the town of Ware will show how such reimbursements are made. The MDC records indicate that the Ware portion of the lands above the high water mark of the Quabbin Reservoir taken from the four discontinued towns is 14.19% of the total of such lands. Secondly, the MDC values

the remainder of its lands in Ware at $113,991. The reimbursement received by the town for 1985 is as follows:

1.	$ 50,000 x .1419	= $ 7,095.00
2.	$113,991 . $22.06/$1,000	= 2,514.64
	TOTAL	$ 9,609.64

There seems to be a certain dissatisfaction of MDC communities not within the Quabbin and Ware River watersheds with the practice for calculating their reimbursement incorporated in sections 5D - 5F. Recently, Chapter 696 of the Acts of 1986 required DOR to conduct a study of the payments in lieu of taxes for property of the Wachusett and Sudbury watersheds, spurred in part because communities within those watersheds believe they are receiving an inadequate reimbursement. That report is to examine the current payments to each community and the amount each would receive if the reimbursement were based on the current assessed valuation of such property. For example, the town of Holden contains over 1,100 acres of MDC land within the Wachusett watershed and received a $5,000 reimbursement in 1984, but only a $376 payment in 1985*.

Sections 5D - 5F require separate calculations for MDC lands acquired before 1/1/46 and lands acquired after 1/1/46. For lands acquired before 1/1/46 payments are based upon the average of the assessed taxable valuation, not including buildings, for the three years preceding their acquisition; when a community conducts a general revaluation DOR determines the value of the MDC lands so that the payments received cannot be lower than, or at least will remain substantially the same as, the payment preceding the revaluation. Interestingly, the towns of the Wachusett Reservoir - Boylston, Holden, Sterling, and West Boylston - and the towns of Ashland and Hopkinton are exempt from this procedure. This would explain why the payments to Holden mentioned above decreased so drastically since there is no provision holding the payment stable from year to year.

For all lands acquired after 1/1/46, section 5F states that the initial payment is based upon the average assessed value for three years preceding a property's acquisition. Land and buildings are included in this value, and values for properties which are tax-exempt at their date of acquisition. are calculated and included for purposes of reimbursement.

* Conversation with Holden's Principal Assessor.

In a year when a community conducts a revaluation of all its real property, payments may not be less than that received in the year immediately preceding the revaluation. The local tax rate, or commercial rate if a community has adopted classification (M.G.L. Chapter 59 Section 24), is applied to the assessed value to derive the value of the payment to be made.

3.3 EVALUATION AND ALTERNATIVE APPROACHES

The preceding section, in describing the current approach for calculating the reimbursement for state and MDC properties, has led to a better understanding of the difficulties of making payments in-lieu-of taxes. For state-owned properties there has been developed a reasonable and standardized approach to reimburse communities when private, taxable lands are acquired for a public purpose. Procedures for calculating reimbursements for MDC lands are not as straightforward and have caused some inequities and dissatisfaction among district communities. An evaluation of each of these approaches will now be undertaken separately.

Chapter 58 Section 13-17B is a good program to provide payment to communities for hosting state lands and facilities, and DOR appears to be doing a very good job in executing its mandates. Nevertheless, there are a number of problems that are inherent in this approach, and several suggestions are offered to revise this procedure to make it more equitable for all communities. The formula for calculating the reimbursement contains two elements: the land's fair cash value, and the average statewide tax rate for the preceding three years. Each element lends itself to some reform.

The fair cash value of land is a reasonable basis upon which to base reimbursement; after all, local property taxes are based upon real property values; and communities are required to conduct full, 100% valuations every three years. However, for reimbursement purposes, the fair cash value is calculated every five years. During this five-year period, land values may increase dramatically, as has been the case in the recent past. Communities lose out because they are not able to capitalize on this increase in value until the next fifth year value determination. Using the Swift River Wildlife Area as an example, in 1980 and 1984 the value of the property was $128,000; only in 1985 was the new fair cash value of $416,700 calculated.

> Solution: calculate the fair cash value on a three-year rather than a five-year cycle to be more consistent with communities' own requirement to conduct full property valuations every three years.

An obvious disadvantage to shortening the cycle is that it will increase the administrative burden upon DOR.

Secondly, only the fair cash value of land is considered; the value of buildings on the property is excluded. As will be discussed in a later section of this report, a community's cost of servicing state facilities is higher than if vacant land is held for open space or resource protection purposes. Because these costs are higher the reimbursement paid by the state may not adequately compensate a community. This would be particularly true of large state facilities that require a higher level of local services. Obviously, it would be very expensive if DOR had to include the value of buildings in the reimbursement formula. Not allowing any compensation for such buildings, however, puts host communities at an economic disadvantage.

Solution: allow communities to appeal their reimbursement based upon the economic impacts state facilities impose on local services. Currently a community can only appeal the fair cash value determination by demonstrating convincingly that the market value of a parcel is much higher than DOR's estimate. A disadvantage to this approach is that many communities may attempt to make this argument at the same time greatly increasing the workload of DOR staff.

Use of the average statewide tax rate also has certain disadvantages. First, the tax rate of the local community may differ widely from the statewide average. Communities with a lower tax rate than the statewide average receive a windfall, while communities with a higher tax rate than the statewide average receive less money than if the land could be taxed as private property.

Solution: apply the local tax rate to the fair cash value of the property rather than the statewide average. In theory, this should not affect the overall level of payments since the average rate currently used balances those communities higher or lower than the statewide average. (A precedent for using the local commercial tax rates has already been established for MDC reimbursement procedures.) *

* The BCRPC disagrees, an belives that the state wide average should continue to be used, because the state-owned land is not for residential use, but for state wide use. Also, lower tax rates should not become a crieterion for locating a new state facility.

Secondly, from the Ware example, it is clear that local tax rates (and therefore the statewide average as well) are constantly declining. The principal reason for this is that under 100% valuation, assessed values are kept at the current, fair market values, but the community can only increase its tax levy by 2 1/2% per year under Proposition 2 1/2 (excluding the value of new construction). As a result, with the rapid increase in real property values has come a dramatic decline in the tax rates. The full impact of this decline is buffered somewhat by calculating the statewide rate on a three-year average basis.

> Solutions: if either the statewide tax rate average is retained or replaced by the local tax rate, the tax rate should be stabilized or increased. It can be stabilized by using the tax rate existing at the time of the most recent revaluation for the five (or three) year period between revaluations. It can be increased by tying it to a standard economic indicator, such as the consumer price index; for example, if the CPI increased by 2% the tax rate used would also increase by 2% the following year.

Both elements of the formula acting together can penalize regions where land values are not increasing rapidly. Communities where the value of the land is increasing faster than the decline in the tax rate will note an increase in funds, and communities where property values are rising slower than the decline in the tax rate will lose money. In the past, this has tended to favor the eastern part of the state where land values have been rising at a faster rate than in the western part of the state.

> Solution: use local tax rate.

The MDC and MWRA properties contain a number of conflicting approaches. For the Quabbin watershed, there is one payment based on the percentage of land in each town taken from the four discontinued towns, and another payment based upon the remaining land's fair cash value. For the Wachusett and Sudbury watersheds one payment is based upon the value of land taken prior to 1/1/46, and a second payment for land taken after 1/1/46. These four different methods have led to discrepancies in payments and some communities believe their payments are inadequate for the large acreage devoted to protecting MDC's water supplies.

> Solution: develop one standardized approach, for both MDC/MWRA lands and for state-owned lands. The fair cash value of land approach using an acceptable tax rate would seem to be the most equitable manner of reimbursing communities, since the payments received

are directly related to the value of land in each community. Use of the fair cash value method, rather than relying upon the locally determined assessed value, would prevent artificial inflation of values to increase reimbursement, and would give DOR the same level of control it now has with state-owned properties.

Finally, and most importantly, the program for reimbursing communities for state properties based upon the land's fair cash value is not being fully funded. Recently the total budget for this program was frozen at $14.7 million, with available funds disbursed on a proportional basis. At the present time communities are not being fully reimbursed for the amount to which they are entitled by state law.

Solution: increase the funding for this program to the extent necessary for each community to receive the full amount of its in-lieu-of-tax payment.

To summarize briefly there are a number of steps that can be taken to provide greater equity in the manner in which communities are compensated for hosting state and MDC/MWRA lands and facilities. These are:

1. For MDC and MWRA lands, adopt the fair cash value approach incorporated in M.G.L. Ch. 58 SS. 13-17B.

2. Shorten the revaluation cycle to a three-year period.

3. Stabilize the payments during this five or three year period by using the tax rate existing during the year the revaluation takes place.

4. Use a local tax rate rather than the statewide average tax rate.

5. Increase the amount of aid appropriated for this program.

6. Allow appeals of the reimbursement based upon a cost of service analysis (to be more fully explained in the following sections).

3.4 FISCAL IMPACT METHODS

Chapter 763 called for an in-depth analysis of the economic impacts state lands and facilities have upon their communities and the region. One important charge of this study was to research and develop methods to quantify these economic impacts, and then to test appropriate methods by

application to specific properties. If agreement is reached at a later date on the need to conduct the full-scale economic study envisioned in Chapter 763, these methods can be readily applied to the task.

The basic concept of the economic analysis is to determine if the in-lieu-of-tax payment rendered by the state is adequate to cover the costs a community bears in providing services to support the state properties. A field of study has been developed known as fiscal impact analysis, which attempts to compute the costs and revenues a development will generate upon a community. Research was conducted on a number of specific fiscal impact methods to determine which ones, if any, could be applied to state facilities. This section provides an overview discussion of the field and a narrowing down of the methods that seem to hold the most promise for analyzing the fiscal impacts of state facilities.

Fiscal impact analysis has been defined as:

> A projection of the direct, current, public costs and revenues associated with residential or non-residential growth to the local jurisdiction(s) in which this growth is taking place. (1)

There are a number of points regarding what fiscal impact analysis can and cannot do. First, it measures the direct, financial costs and revenues associated with a development. Direct costs include operating expenditures, such as salaries of new employees that must be hired, and capital costs the community incurs, such as a new police cruiser or pumping station. Direct revenues, at least in Massachusetts, include property and auto excise taxes, state and federal aid, and in a few cases, linkage payments. Secondary impacts of development are not calculated. For example, an industrial park might generate spin-off businesses such as copy centers or janitorial services which have positive benefits of new employment and wages and property tax revenues to the community. But in most cases it is nearly impossible to accurately predict what secondary impacts will be generated solely by the development under study.

Secondly, fiscal impact analysis computes costs and revenues in current dollars, that is, as if a development were in place and impacting the community today. There is no way of predicting what tax rates or municipal budgets will be when a project is fully developed. It is necessary to assume that current costs and revenues are reliable predictors of municipal operations in the not-too-distant future; that is, it is assumed that the relative relationship of costs and revenues will change little over time.

Thirdly fiscal impact analysis is normally concerned with population and/or employment change resulting from a

development. It is standard practice to use various ratios or multiple based upon research into the impacts similar types of development impose either locally, regionally or nationally. In some instances use of non-local standards can result in a distorted view of a project's fiscal impacts.

Fiscal impact analysis has been primarily used to predict the impacts proposed development will have upon the community's budget and operations, but there is no reason why existing developments cannot be studied in the same way. However, state facilities are public, institutional uses that must be considered differently than typical residential or non-residential developments. It is necessary to modify fiscal impact methods written for private developments to obtain reliable results for state properties. Several factors lead to this conclusion.

Private developments generate property tax revenues while most state properties account for an in-lieu-of-tax payment discussed previously. Private developments also influence the amount of aid received from state and federal sources; for example, a large single family residential development will add many school children and alter state educational aid, which is based in part upon the number of school attending children.

In addition, while standard multipliers have been developed for residential or non-residential development, using population and employment changes respectively, the use of multipliers for state facilities is inappropriate. Each state facility is unique, and no standard multipliers can be developed which can account consistently for the wide variations that exist. For example, a mental hospital provides residency to a fluctuating number of clients for either acute or chronic care, but generates no new school children as is the case with private residential development; employment will differ as well, since such institutions require three shifts for staff, unlike an office development where only one shift occupies a facility during the day.

In exploring the various techniques of fiscal impact analysis it soon became apparent that one method could not be developed that would apply to all state properties. Three separate techniques were necessary that could be applied in the following situations: 1. vacant land, for example a state forest or park; 2. an existing state facility, such as a mental hospital or office building; and 3. a proposed state facility. A brief discussion of the various methods of fiscal impact analysis will now ensue to provide some background for the reasons why different techniques were selected to cover each of these situations.

There are two broad categories for determining the fiscal costs of development on a community, average cost methods and

marginal cost methods, and either of these can be applied to residential or non-residential situations. As average costing implies, the average cost of providing services for various municipal categories is calculated and multiplied by the number of new units (population, school children, employment, etc.) anticipated as a result of the proposal. Such methods assume that today's average cost of services will apply in the future when the development is fully operational. However, depending upon the available capacity of a service in a community, this may not always be true. Certain types of services, such as fire protection and education, may be stable for a period of time, but then increase dramatically when certain thresholds are exceeded, necessitating capital investments in costly buildings and equipment. For a school system in an older suburban community, for example, where population has stabilized and birthrates declined, there may be considerable excess capacity in both personnel and physical plants which can easily accommodate a new development. In a rapidly growing area, this same development may necessitate the construction of a new school building which disproportionate increases the cost of education for the new development. The marginal cost attributed to this development would be much greater than the annual average cost of service to existing homes in the community.

Marginal cost techniques do take into account whether there is excess or deficient capacity for community services. It deals with fiscal impacts in their cyclical context when sudden, large investments are required as capital capacity thresholds are exceeded, followed by periods of relative stability. in general, marginal costs will be lower than average costs when unused capacity exists to absorb the demand for service, and the opposite will be true when demand for service exceeds current capacity levels. (2)(3)

If the services a community provides are close to the level of demand that is being experienced, average cost methods are appropriate since future costs will likely reflect current costs. if there is a large excess or deficient service capacity marginal cost methods should be used. Marginal cost strategies are more effective in cases where large or unique proposals are to be examined, while average cost methods are valid for small proposals or if several alternatives need to be studied.

For an existing state facility, which is currently receiving services from the community, average costing methods are appropriate since it is highly unlikely that the facility would require major capital expenditures, unless a major expansion or change in use was imminent. When a new state facility is proposed in a community, a marginal cost analysis would be most appropriate since the facility may create demands upon services where deficient capacity exists.

For vacant state land, two approaches are proposed. It is possible to determine the cost of services imposed on the community by selecting specific departments that actually provide services to the facility and calculating the costs imposed. Vacant land requires few municipal services and therefore imposes minimal costs upon a community. Open space also provides positive benefits to a community which are difficult to quantify. It is likely that open space properties will provide a net gain in revenue since few services are actually provided. The second approach is to calculate the fiscal impacts if the land were sold off for private development. This can indicate to the community the probable consequences of additional development. Based upon existing zoning and a land capability analysis, a hypothetical development can be proposed and the fiscal impacts of that development upon the community can be calculated. For ease of analysis if a large number of properties were to be studied on a regional basis, an average cost technique is proposed. We will now proceed to a discussion of the various types of fiscal impact methods currently available and evaluate their applicability to the task at hand.

Six methods have been compiled in various reports of the Center for Urban Policy Research at Rutger's University in New Jersey, based upon a history of fiscal impact analysis extending back into the 1930's. Table 6 lists these method, whether average or marginal cost methods, and shows their applicability to either residential or non-residential development.

Table 6

Fiscal Impact Methods

Method	Basis	Application
Per Capita Multiplier	Average Cost	Residential
Service Standard	Average Cost	Residential
Proportional Valuation	Average Cost	Non-Residential
Case Study	Marginal Cost	Residential
		Non-Residential
Comparable City	Marginal Cost	Residential
Employment Anticipation	Marginal Cost	Non-Residential

In most cases facilities will more closely resemble non-residential uses than residential uses, which narrows the field to Proportional Valuation, Case Study, or Employment Anticipation. For reasons discussed previously, by their very nature state facilities provide unique services not elsewhere duplicated by the private sector, and basing fiscal impacts upon past experience with other non-residential uses is somewhat suspect.

The Employment Anticipation method assumes that the level of commercial or industrial employment affects municipal expenditures and it predicts changes in municipal service categories based upon changes in employment. Research of communities of varying sizes has yielded multipliers of the impact one additional employee will have on each service category. The impact of the proposed employment is determined by applying these multipliers to the per capita municipal expenditures and multiplying that product to the existing population. The problem inherent in this approach is that the multipliers have been developed based upon experience with commercial and industrial uses which may not be applicable to state facilities.

The Proportional Valuation method is based upon the proportion of the value of all tax-exempt uses to the total local property value and applying that proportion to the annual non-school tax levy to obtain the costs all institutional uses impose on non-school services. Then the proportion of the value of the state facility to the total tax-exempt property value is applied to the municipal costs attributed to tax-exempt property to yield the costs induced by the facility. Problems with this approach include: its generalized nature yields only rough estimates of costs; communities normally do not calculate the value of tax-exempt properties which would make it impossible to use this method; and tax-exempt properties affect only a limited array of municipal services. In a report funded by the Massachusetts Department of Community Affairs, a Proportional Valuation method was proposed to assess the impacts of a proposed re-zoning; the author felt that this method yielded more reliable results for residential than non-residential development. (4)

The Case Study method is a marginal cost technique that identifies the specific impacts caused or likely to be caused by an existing or proposed development. It relies upon site-specific research and interviews with local officials to determine current capacity levels and estimates of service and capital needs. While more detailed and time consuming than other methods its reliance upon local service levels rather than national standards, provides a more accurate community analysis. Service levels are examined to determine whether excess or deficient capacity exists, and how these are dispersed geographically throughout the

community. For example new residential development may be taking place in outlying areas and creating a need for a new elementary school in that area, while other parts of the community may be experiencing enrollment declines and school closings. For large or unique development proposals this method offers the most accurate tool for analyzing fiscal impacts.

For vacant state land, to determine the fiscal impacts of such a hypothetical development on the community the approach selected is a Per Capita Multiplier. This method relies upon demographic information by housing type, i.e. the household size and number of school-age children for different housing types. The average cost per person for municipal expenses and per student for school expenses is calculated based on current operating levels to project an annual operating cost to the population and school enrollment figures estimated from the proposed development. This technique will be described in greater detail in the case study analysis for the town of Ware. The Per Capita Multiplier method is one of the most widely accepted fiscal impact procedure available and has an important advantage in being easily understood and implemented.

On the revenue side of the equation, the amount of reimbursement in-lieu-of taxes for an existing state property can be obtained by contacting DOR or the MDC. For facilities likely to be acquired and developed by a state agency the reimbursement is based on land values only. If the property was previously assessed by the community the most recent determination of the land's value can be obtained from the assessors. If the property has recently been sold or acquired that value can be obtained from the county Registry of Deeds, or from periodicals such as Banker and Tradesman. If buildings exist on the property only one value for lands and buildings may be recorded.
For the residential development scenario, an average selling price of new homes can be obtained from local assessors records or the Registry of Deeds. Other comparable developments in the community and surrounding towns can also be quickly examined to determine an approximate sales price of new homes. Since new homes will likely sell for a higher price than the average of existing homes in the community, efforts should be made to determine a price for new homes. New developments will also affect state aid for education, the largest component of state aid to cities and towns. If desired this change can be calculated by working the estimated number of school children and increase in property values through the complex educational formula incorporated in M.G.L. Chapter 70.

How these various fiscal impact methods can be applied to the task of calculating the fiscal impacts of state properties will be demonstrated by the use of case study

examples from the towns of Ware, Monterey, Warwick, and Shrewsbury. The Ware example examines impacts of an alternative residential land use on a parcel of vacant state-owned land. The Monterey study examines the impacts of all vacant state land on selected local services. In Warwick a Case Study method reveals the operating and capital costs imposed on the town by Warwick State Forest given deficient capacity of town services; and an analysis was prepared showing fiscal impacts if all potentially available residentially zoned land was built upon. Finally, the Shrewsbury study calculates the fiscal impacts of an existing mental health facility on local services using Proportional Valuation and Cost of Service methods.

Notes

1. Robert W. Burchell, et. al., The New Practitioner's Guide to Fiscal Impact Analysis, Rutgers University, Center for Urban Policy Research, 1985, p. 3.

2. Carol Ethier-Bock, The Fiscal Impact of New Residential Development in Framingham, Massachusetts, Framingham Planning Department, 1986, pp. 27-29.

3. Robert W. Burchell and David Listokin, The Fiscal Impact Guidebook A Practitioner's Guide, U.S. Department of Housing and Urban Development, P.O. No. 603-80, 1980, p. 5.

4. Massachusetts Department of Community Affairs, Office of Local Assistance, Evaluating Development Impact Case Study Chelmsford, Massachusetts, Local Assistance Series Publication No. 3, 1976 pp. 65-95.

Other reports of interest regarding fiscal impact analysis include:

Robert W. Burchell and David Listokin, The Fiscal Impact Handbook, Rutgers University, Center for Urban Policy Research, 1978.

"Fiscal Impact of Development", Metropolitan Area Planning Council, undated.

Larry W. Carter, et. al, Impact of Growth A Guide for Socio-Economic Impact Assessment and Planning, Lewis Publishers, Inc., Chelsea, Michigan, 1985.

Neil G. Sipe and Robert W. Hopkins, "Microcomputers and Economic Analysis: Spreadsheet Templates for Local Government", Bureau of Economic and Business Research, University of Florida, 1984.

CHAPTER 4
CASE STUDIES

4.1 WARE

A residential fiscal impact computer spreadsheet was designed by the Pioneer Valley Planning Commission, based on a model developed by the Bureau of Economic and Business Research, University of Florida, December 1984. The University of Florida spreadsheet was adapted to meet the particular circumstances of communities in Massachusetts. This template allows the user to examine the impacts of a residential development project upon a local government's operating revenues and expenditures. The data needed to drive this model comes from the community, Department of Revenue (DOR) and the project developers. The community can provide the population and school enrollments figures and the DOR can provide all fiscal data through the office of Municipal Data Management and Technical Assistance Bureau. Project characteristics (length of project, number of units, persons per household and children per household) can be obtained from the project developer. After the data has been entered, the model will project the total population, number of school age children and the estimated tax base from the project. From these numbers, revenues and expenditures, each by sub-category (i.e. property tax, charges for services, public safety, education etc.), are created, and the net balance for the residential project is determined. The model can be used not just for lands in state ownership but in many instances where land maybe developed for residential use. The cost to run this model is extremely low, since the data is readily available from state, local and private sources. The template uses a Lotus 1-2-3 spreadsheet and is available at the Pioneer Valley Planning Commission.

Data, concerning state-owned land, was collected for two communities in the Pioneer Valley, Amherst and Ware (see appendices). At first the test community was to be Amherst because of the wide variety of state-owned lands (University of Massachusetts and the Holyoke Range). But as the data was begin collected and analyzed and discussions with other RPA's and outside support people it became apparent that the Amherst situation with all it's variables would require a budget that is considerable higher than the one we had to work with. Thus we choose Ware as the test community.

Ware is a residential-industrial community in Hampshire County located northeast of Springfield at the southern tip of the Quabbin Reservoir. The town has a population of close to 9,000 spread over 25,459 acres of hilly terrain that has north-south ridges and valleys. The Swift River Wildlife Management Area in Ware operated by the Division of Fisheries and Wildlife was chosen as the test site for the model. The DOR has determined (see section 3.2) that the existing road

network and lot size regulations will allow 26 new single family homes to be constructed. Using development characteristics, population and school enrollment figures from the town and revenues and expenditures and DOR (Municipal Data Bank Reports) the net balance of the project was determined. Given the persons/household to be 4.2 and the children/houshold to be 1.5 the project would cost the town $2,641 the first year but will actually earn $520 in revenues beginning in the second year, holding all variables equal. Table 7 illustrates the results. To create different scenarios, any of the project development variables can be changed. Example: If the children/household goes to 1 then the result is a plus $5,713 the first year and a plus $17,222 the remaining years; or if the children/household is 2 the result is a negative $10,994 the first year and a negative $16,187 the remaining years. These scenarios hold all the other variables constant.

INDUSTRIAL AND COMMERCIAL:

No generic fiscal impact study could be design for this State-Owned Land Project. It was felt with so many different possible projects (private, public, commercial, industrial, hospital, park, prison, waste disposal, etc.) that it would only be misleading to generalize on the project. Any proposed project will have to be studied on it's own merit, design and location.

FISCAL IMPACT (RESIDENTIAL)

COMMUNITY: WARE

LOCAL GOVERNMENT DATA

GENERAL GOVT. TAX RATE:	$20.60	TOTAL POPULATION:	8,910
ASSESMENT RATIO:	100	STUDENTS IN PUBLIC SCHOOLS:	1,350
PROPERTY TAX:	$2,652,047		
TOTAL REVENUE:	$9,523,999	TOTAL EXPENDITURES:	$9,755,500
PER CAPITA REVENUE:	$2,389.45	PER CAPITA EXPEDITURES:	$3,505.84
PER CAPITA REVENUE(NOT INCLUDING PROPERTY TAX):	$2,091.80		

PER CAPITA REVENUES		PER CAPITA EXPEDITURES	
LOCAL REVENUE (NO PROPERTY TAX):	$26.37	GENERAL GOVERNMENT:	$40.86
CHARGES FOR SERVICES:	$40.46	PUBLIC SAFTEY:	$76.36
MISC.:	$297.88	EDUCATION:	$2,841.47
INTERGOVERNMENTAL		PUBLIC WORKS:	$119.89
EDUCATION DISTRIBUTION & REIMBURSEMENT:	$1,556.35	HEALTH AND WELFARE:	$284.99
REMAINDER INTERGOV. FUNDS:	$170.74	MISC.:	$142.26

==========

PROPOSED PROJECT CHARTERISTICS

LOCATION: SWIFT RIVER WILDLIFE MGM. AREA
DIVISION OF FISHERIES & WILDLIFE

COMMENTS: THE NUMBER OF UNITS (26) WAS THE NUMBER DERIVED BY DEPT. OF REVENUE

BEGINNING YEAR OF PROJECT:	1987
COMPLETION YEAR OF PROJECT:	1988

DEMOGRAPHIC DATA

PERSONS/HOUSEHOLD:	4.2
CHILDERN/HOUSEHOLD:	1.5

PROJECT YEAR	# OF HOMES	SALE PRICE
1st	13	$110,000
2nd	13	$115,000
3rd	0	$0
4th	0	$0
5th	0	$0
6th	0	$0
7th	0	$0
8th	0	$0
9th	0	$0
10th	0	$0

PROPOSED PROJECT FISCAL IMPACT

PROJECT YEAR	1st	2nd	3rd	4th	5th	6th	7th	8th
DEMOGRAPHICS								
TOTAL POPULATION:	54.6	109.2	109.2	109.2	109.2	109.2	109.2	109.2
SCHOOL CHILDREN:	19.5	39.0	39.0	39.0	39.0	39.0	39.0	39.0
GENERAL GOVERNMENT								
TAX BASE:	$1,430,000	$2,925,000	$2,925,000	$2,925,000	$2,925,000	$2,925,000	$2,925,000	$2,925,000
REVENUES								
PROPERTY TAX:	$29,458	$60,255	$60,255	$60,255	$60,255	$60,255	$60,255	$60,255
LOCAL REVENUE (NO PROPERTY TAX):	$1,440	$2,880	$2,880	$2,880	$2,880	$2,880	$2,880	$2,880
CHARGES FOR SERVICES:	$2,209	$4,418	$4,418	$4,418	$4,418	$4,418	$4,418	$4,418
MISC.:	$16,264	$32,528	$32,528	$32,528	$32,528	$32,528	$32,528	$32,528
INTERGOVERNMENTAL								
EDUCATION DIST. & REIMB.:	$30,349	$60,698	$60,698	$60,698	$60,698	$60,698	$60,698	$60,698
REMAINDER INTERGOV. FUNDS:	$9,323	$18,645	$18,645	$18,645	$18,645	$18,645	$18,645	$18,645
TOTAL REVENUES:	$89,042	$179,424	$179,424	$179,424	$179,424	$179,424	$179,424	$179,424
EXPENDITURES								
GENERAL GOVERNMENT:	$2,231	$4,462	$4,462	$4,462	$4,462	$4,462	$4,462	$4,462
PUBLIC SAFTEY:	$4,169	$8,339	$8,339	$8,339	$8,339	$8,339	$8,339	$8,339
EDUCATION:	$55,409	$110,817	$110,817	$110,817	$110,817	$110,817	$110,817	$110,817
PUBLIC WORKS:	$6,546	$13,092	$13,092	$13,092	$13,092	$13,092	$13,092	$13,092
HEALTH AND WELFARE:	$15,560	$31,121	$31,121	$31,121	$31,121	$31,121	$31,121	$31,121
MISC.:	$7,768	$15,535	$15,535	$15,535	$15,535	$15,535	$15,535	$15,535
TOTAL EXPENDITURES:	$91,683	$178,904	$178,904	$178,904	$178,904	$178,904	$178,904	$178,904
NET BALANCE:	($2,641)	$520	$520	$520	$520	$520	$520	$520

4.2 MONTEREY

Monterey, a rural community with a small population and a large state forest landholding, is representative of many small Berkshire County towns. While the permanent population was 581 persons in 1986, the seasonal or vacation population has increased in recent years. Town officials have estimated that in the summer the town's population doubles or triples. And, like other rural southern Berkshire County towns, Monterey is experiencing increasing development pressure for out-of-town owners' second homes.

However, much of the land in Monterey is hilly and rocky or wet, severely limiting developability. This is true on the state owned land, which encompasses 4,831 of the Town's total 17,427 acres, or 28 percent. Most of this land is Beartown State Forest, which is a large consolidated property with few improved roads. Due to the severe terrain, limited access, and rural development pattern of the town, it seems inappropriate at this time to evaluate the state land on its potential value to town economy as local residential development, since this is not a realistic alternative use at this time. However, as the more easily-developed land has been consumed, development pressure has begun to bring development to the historically undeveloped parts of town, with steep slopes, forests, and rugged terrain. If this trend continues, the beautifully naturalistic state lands might become very much the type of real estate that will be sought after for high-priced homes featuring privacy and natural beauty.

For this point in time, the state owned property in Monterey has been evaluated using a cost-of-service methodology. Services applied by Monterey to the state land, however, are relatively small. There is no town water or sewer service to the property. The police and volunteer fire department do answer calls to the property, but officials from these departments estimate this takes a small percentage of their time. Although the state land includes over one-quarter of the land in town, police and fire service is not allocated proportionately to area, but is estimated at about 10% of total time spent. In neither case does this amount of service require extra personnel or equipment to serve the state property. Town highway maintenance due to increased traffic on town roads from tourist use of the state lands is estimated at $5,000 but the State maintains the roads within the state property. The cost of increased disposal of solid waste is estimated at $4,000. Again, these are town officials' rough estimates based on observed patterns of state forest use, not calculated costs.

COSTS OF SERVICES TO MONTEREY
(FROM 1985 - 1986 ANNUAL REPORT)

Dept.	Expenditures	% Attributed to State Owned Land (estimated)	Amount
Police	$12,549	10%	$1,254
Fire	15,935	10%	1,593
Highway	49,170	*	5,000
Solid Waste	26,400	*	4,000
TOTAL:			$11,847

*Percent not estimated; instead town officials directly estimated amount spent due to the presence of state owned property.

REIMBURSEMENTS TO MONTEREY
MONTEREY INVENTORY OF STATE OWNED LAND

Location	Size	Town Valuation	Management
Mt. Hunger Road	3.56 ac.	$4,700	DEM
App. Trail	5.157 ac.	$500	DEM
Blue Hill Road	38.22 ac.	$7,200	DEM
Beartown State	4,780.00 ac.	land: 1,573,200	
		house: 37,200	
		house: 54,400	
		other: 46,800	
Off Lake Garfield	0.14 ac.	$400	DPW
Boat ramp Lake Buel	4.9 ac.	$19,200	Public Access Board

DEM values all its lands at uniformly at $340/acre for a total of $1,637,000 for 4827 acres. The DPW land is not reimbursed and therefore not valued, and the Public Access Board land is valued at $40,000. The total DEM valuation is $1,677,000.

Total reimbursement by the State for in-lieu-of-tax payments in FY 1987 was $48,098, roughly four times the estimated cost of services provided by the town. If, instead, the town was taxing the land using the state valuation at the town tax

rate of $11.88, the tax payments would be $18,447. If the buildings were also generating tax revenue, the town would receive an additional $1,522. Because the statewide average tax rate is higher than the local tax rate, the in-lieu-of-tax payments are greater than the taxes the town would receive at the $11.88 tax rate.

However, it is nearly impossible to buy acreage in Monterey for $340/acre. Comparison with sales of similar forest land in Monterey suggests that the town might easily value this land at two to four times the state valuation. Furthermore, building lots in an approved subdivision in this region sell for $20,000-$40,000, and the houses built on such lots are valued at $100,000 and more. A parcel was recently sold for $1,500/acre, and it was landlocked and sold to the abutter. Costs of roads, drainage and other site improvements are the responsibility of the developer and lot owner, and cost the town nothing. This type of development, which would be possible on interior state land, would increase revenues to the town. And, of course, the state owns a great deal of valuable land that has frontage on town and state roads, and could be sold as "Form A" lots.

In conclusion, this case study shows that a town with a large amount of state owned, primarily difficult to develop land may receive reimbursements in excess of costs to the town. Also, the town receives more money from the state than if the land were owned privately and the state assessed value were taxed at the town rate. However, some of the state land would probably be valued higher by local assessors, and the value of potential building lots and houses could increase revenues to the town far beyond the state reimbursements, especially if current market demands for building sites with privacy and natural beauty continue.

4.3 SHREWSBURY

The Glavin Center, otherwise known as the Worcester Regional Center for Children with Special Needs, is a 123.45 acre parcel in Shrewsbury, associated with the now inactive Hillside State Farm. The property is located on the southerly side of Route 9 and contains extensive frontage on Lake Street, a locally maintained road in fair condition. Operated by the Department of Mental Health the Center provides day treatment for mentally retarded clients. Various portions of the property are zoned Limited Industrial, Residential A, and Residential B-1; the industrial zoning allows a wide variety of office and light industrial uses, while the residential districts are primarily devoted to single family uses on lot sizes of 20,000 and 12,500 square feet respectively.

Shrewsbury is a rapidly developing affluent suburb bordering

Worcester to the east. There have been a number of shopping centers, office parks, and industrial uses recently built in the community because of its favorable location in the regional highway network. Rapid residential development is also taking place with expensive single family homes predominating, although several multi-family projects have also recently come on line. The Glavin Center's strategic location bordering on Route 9, and favorable development potential over large areas of the site, make this a very attractive site for future development.

Table 8 shows various pieces of financial data relating to the Glavin Center for the year 1985 to help put the payment made by DOR into the context of this community. Line 2 shows the fair cash value of the property (land only) determined by DOR to be quite high, over $7.2 million, and all reimbursable state lands are valued at over $8.8 million. The payment made to the Town is calculated by multiplying the percentage of value of this property to all state lands (81.7%) by the total payment made by DOR for all state lands. Line 5 reveals the payment for the Glavin Center to be roughly $53,000. For a $7.2 million property this equates to a tax rate of only $7.33 per $1,000 of valuation; as noted previously, a cap on in-lieu-of-tax payments limits the amount of funds to a lower amount than the formula would otherwise provide. If the local tax rate of $13.58 per $1,000 was applied to the property's value, the payment would be $98,200 (line 7). If the three-year statewide average tax rate of $21 per $1,000 was applied, the payment would amount to almost $152,000 (line 8); and if the property were assessed and taxed by the Town, the tax payment would be $181,146. The value of the property per acre is $58,580 (line 11); while it appears quite high in comparison to other case studies in more rural communities presented in this report, it is probably quite realistic for Shrewsbury given the recent escalation in land values occurring in Central Massachusetts.

Table 8
Glavin Center Financial Data for 1985

1. Total Reimbursement to Town for Loss of Taxes via Cherry Sheet:	$ 64,919
2. Fair Cash Value of Glavin Center Calculated by DOR:	$ 7,231,800
3. Fair Cash Value of All Reimbursable Property in Shrewsbury	$ 8,847,800
4. Percentage of Value of Glavin Center to Total Value: 7,231,000 / 8,847,800 =	81.7%
5. Reimbursement for Glavin Center Property: $64,919 x .817 =	$ 53,038.82
6. Tax Rate at which Glavin Center is Being Reimbursed: $53,038,82 / 7,231.8 (1,000's) =	$ 7.33 per $1,000
7. Reimbursement if Local (Commercial) Tax Rate Was Used: 7,231.8 x $13.58 per $1,000 =	$ 98,207.84
8. Reimbursement if 3-Year Average Statewide Tax Rate Was Used: 7,231.8 x $21 per $1,000 =	$ 151,867.80
9. Locally Assessed Value (Land and Buildings)	$ 13,339,200
10. Tax Payment if the Land was Privately Owned: $13,339.2 (000's) x 13.58 =	$ 181,146
11. Value per Acre: $7,231,800 / 123.45 =	$ 58,580

Is this payment realistic given the cost of services the Town must provide? Two approaches are presented which provide alternative methods of examining this issue. The first is a Proportional Valuation method, and the second a cost of service method.

As discussed in section 3.4 Proportional Valuation is an average cost method which is straightforward in its application but may be impossible to use in communities that have not determined the value of tax-exempt properties. This method is usually applied to non-residential uses but a modified approach was developed here to apply it to state properties. Table 9 presents the calculations.

Table 9
Proportional Valuation Method

1.	Valuation of Real Property Exempt from Taxation:	
	Commonwealth of Mass. (DOR value)	$ 8,847,800
	Charitable Institutions (1985 Annual Report)	433,200
	Scientific Institutions " " "	10,316,100
	Educational Institutions " " "	94,052
	Churches & Parsonages " " "	10,947,710
	Veteran's Organizations " " "	1,620,000
	City of Worcester Rifle Range " "	1,620,000
2.	Total Value of Tax-Exempt Property (excluding town-owned)	$ 33,878,862
3.	Valuation of Taxable Property:	$878,801,007
4.	Total Valuation:	$912,679,869
5.	Proportion of Tax-Exempt to Total: $33,878,862 / 912,679,869	3.71%
6.	Total Tax Levy:	$ 11,159,141
7.	Proportion of Non-School Budget to Total Town Budget:	73.9%
8.	Non-School Tax Levy $11,159.141 x .739 =	$ 8,246,605
9.	Tax-Exempt Demand on Non-School Tax Levy: $8,246,605 x .0371	$ 305,949
10.	Glavin Center as a Proportion to All Tax-Exempt Property $7,231,800 / $33,878,862 =	21.3%
11.	Burden of Glavin Center on the Non-School Tax Levy $305,949 x .213 =	$ 65,167

In Shrewsbury, the Board of Assessors have calculated the value of all tax-exempt property; instead of using the Town's value for state-owned lands, the DOR value of $8.8 was inserted because the reimbursements are based upon this value, not the Town's. On line 4 the valuation of all property is shown to be $912.7 million, and line 5 shows that tax-exempt property represents 3.71% of this total.

The next step is to determine the burden tax-exempt property places on tax-generating property. Only non-school items are used here because institutional uses place no burden on the

local school system, but all uses place a burden on non-school services. On line 8, it is shown that $8.25 million of local tax revenue goes to support non-school services. Since 3.71% of the total valuation of all property in the Town is tax-exempt, it is assumed that this represents the proportion of cost imposed upon the Town's tax revenue to support services to these properties. Applying this percentage to the non-school tax levy yields a burden on the Town of $305,949 to support all tax-exempt properties. The cost of the Galvin Center of $65,167 is calculated by applying the share of its value to the total value of all tax-exempt properties. Since this is an existing facility, it can be assumed that there are no anticipated capital facilities necessary to provide services to the Center. And there will be no changes in school aid since this is an existing property and the value of tax-exempt properties are not used in the formula for calculating school aid.

The Proportional Valuation approach assumes that the state facility shares in the costs of all non-school services, even if the facility does not generate a demand on specific Town departments. A similar approach is to only look at those specific departments that actually provide services to the facility, and to assign a share of each department's cost to the facility. In this case the total costs derived would be much less than the Proportional Valuation method because only a limited number of services are included in the calculation. This approach also entails considerably more work in obtaining the detailed department budgets and assigning costs on a reasonable basis.

Step 1 involves determining the departments that provide services to the facility and obtaining from the town the latest annual report or current budget document detailing operating and debt service costs. Each community assigns costs in a unique manner, and department heads should be contacted to insure that all items are included accurately.

Secondly, for those departments identified it is necessary to develop a unit cost that can be applied to the state facility. Some services lend themselves to a breakdown of unit costs easier than others. The costs of street maintenance, for example, can be broken down into a cost per street mile by dividing the budget for this item by the total mileage of locally maintained roads; the frontage of the state facility on local streets can be multiplied by this unit cost to determine the cost the facility imposes on the highway budget. On the other hand, when user fees pay for operating costs (such as a water department charging fees to its customers on the amount of water consumed) capital costs are usually borne by the entire community and cannot be broken down into a unit cost; in these cases the only reasonable approach is to assign a cost based upon the value of property since property taxes usually cover such expenses.

The third and final step entails applying these unit costs to departmental budget items to determine the costs by department imposed by the state facility. When all departmental costs are added, the total cost on the municipal budget results. Tables 10 and 11 show these calculations for the Glavin Center property. A total cost of $34,202 results using this method.

Table 10
Departments Serving State Facility

Department	Operating Budget	Debt Service	Total
Police	1,068,123	-	$1,068,123
Fire	923,674	-	923,674
Highway	867,370	-	867,370
Sanitation (landfill)	(1)	-	-
Sewage	224,039 (2)	172,320	396,359
Light (Municipal)	(3)	231,684	231,684
Water	(3)	43,075	43,075
General Government	654,396 (4)	-	654,396
Totals	3,737,602	447,079	$4,184,681

1. Facility contracts with a private hauler to dispose of solid waste at the Town landfill; costs of landfill operation are borne by the general tax levy.

2. Facility pays at established Town rate for this service; use fees pay for 75% of the department's budget. This figure represents 25% of the budget for this item.

3. Facility pays at established Town rate for this service. Fees cover 100% of the operating costs.

4. This figure includes the budgets for the following departments: Selectmen, Town Manager, Accountant, Treasurer and Collector, Assessors, and Town Clerk.

Table 11
Cost of State Facility

Department	Factor	Cost/Unit	Units	Costs
Police	Acreage	$ 76.45	123 ac.	$9,403.35
Fire	Acreage	66.11	123 ac.	8,131.53
Highway	Miles of local street	8,260.67	.75 mi	6,195.50
Sanitation	Tons of solid waste	$ 15 (1)	?	?
Sewage	(2)	-	.79%	3,131.24
Light	(2)	-	.79%	1,830.30
Water	(2)	-	.79%	340.29
General	(2)	-	.79%	5,169.73
TOTAL				34,201.94

(1) Public Health Official estimate of disposal cost per ton at Town landfill.

(2) Proportion of property value to total value (real, personal, and tax exempt).

To help summarize the results of this case study, the range of estimates calculated for the costs the Glavin Center imposes on Shrewsbury are shown below:

1.	Cost of Specific Town Departments	$ 34,202
2.	In-Lieu-of-Tax Payment by DOR	$ 53,039
3.	Cost Derived by Proportional Valuation	$ 65,167
4.	Potential Payment If Local Tax Rate Was Applied to Fair Cash Value	$ 98,208
5.	Potential Payment If Three-Year Statewide Average Tax Rate Was Applied to Fair Cash Value	$ 151,868

The payment made by DOR falls roughly mid-way between the costs calculated by examining only those services provided by the Town and the Proportional Valuation method which takes into account all non-school services. If the local tax rate, or the tax rate required by state legislation was used, the payment would be much higher than either cost approach would justify. Of the two methods, the Proportional Valuation technique is easier to apply and may therefore give more reliable results. Finally, it would appear that, at least in this case, the high value of the property calculated by DOR results in reimbursements roughly equivalent to the cost of providing services. In communities where property values are lower, but having roughly the same budgetary constraints, the payments could be much less than the community's costs.

4.4 WARWICK

Analysis of Existing land and Facilities on a Cost of Service Approach and a Fiscal Impact: potential residential Development Approach Case Study: Warwick, Massachusetts

In 1986, the town of Warwick received $87,434.00 in lieu of taxes from the State of Massachusetts for the 10,119 acres that make up Warwick State Forest. The state reimbursed Warwick for the lose of tax revenue on these state-owned lands. The state assesses the land only, not structures built on a given lot. The Town of Warwick, if given authority to assess the current forest would assess both land and facilities. However, the State uses a state-wide average tax rate of $19.00 per $1,000.00; this figure is higher than the Town's tax rate of $14.40 per $1,000.00.

Because of this higher state-wide average tax rate, the state reimbursement closely appropriates the Town of Warwick's local assessment of land and facilities on Warwick State Forest. However, the state reimbursement figure does not take into account the cost of servicing the state facilities by the Town. Given the state's absolute domain in operating prisons, (the primary facility on the state-owned land in Warwick), these facilities if controlled by the Town of Warwick would house other types of accommodation - perhaps a park recreational facility. In any case, the presence of the prison does draw on local community services -particularly police, fire, highway, sanitation and local government. The following Table 12 illustrates a breakdown of Warwick's community services by operating costs and capital costs.

TABLE 12

TOWN OF WARWICK
COMMUNITY SERVICES, 1986

Costs Category	Operating Costs Items		Capital Costs Items	
Police	Salaries	$5,000.00	Cruiser	$2,495.00
Fire	Salaries	$640.00	Alarm Box	$3,800.00
			Traffic Signals	$3,810.00
Highways	Salaries & Sick Leave	$54,644.00	Paving	$18,000.00
	Vacation	$6,093.00	Truck	$18,000.00
	Highway Maint.	$71,307.00		
	Machinery	$15,689.00		
Sanitation	Salaries	$7,131.00	Landfill	
	Landfill Other Salaries	$1,926.00		
	Tons of Solid Waste	$8,280.00		
Local Govt.	Salaries	$40,499.00	Computer Costs	$10,000.00
			Town Hall Rehab.	$6,200.00
Water	Private		Private	
Sewage	Private Septic		Private Septic	
	Total	$195,519.00	Total	$66,794.00

Cost of Services

Any cost of services by the town for state facilities poses an extra burden on small rural communities like Warwick. In an attempt to see if state reimbursement monies adequately covered the expenses of the local town, a cost of service analysis was conducted. Please see Tables 13-15.

As you can see, Table 13 itemizes community service costs by operating costs per employee. Tables 14 and 15 are used to illustrate operating costs and capital costs by community service to the town of Warwick for servicing Warwick State Forest.

Table 13 reveals that salaries for community services are very low in Warwick. Much of the town's community work is done by volunteer labor. The cost of service approach does not necessarily take into account the value of a town volunteer's time or talent.

Information for Tables 14 and 15 were obtained from town officials. Estimates were made to show what percent of a given town service was expended on servicing the State Forest land or facilities. In the case of Warwick, town officials were asked how the state-owned facilities (prison and recreational areas) impacted on specific town services. For example, how frequently did town police respond to the prison's call for help, how often were prison or recreational facility-related trips made on town roads, did the prison use the town landfill, etc.?

Using these tables, it was ascertained that one additional staff person was needed by the town highway department ($15,000 yearly salary) to meet the additional road work caused by state use of town roads. In Table 15, capital costs attributed to servicing the state facilities totalled $3,732.00. Hence, the total town contribution to the state facilities totalled $18,732.00 (from operating and capital costs to the town). Because the town of Warwick would assess both land and existing facilities (if it controlled the State Forest) and hence yield a tax revenue slightly larger then the current state reimbursement funding total, any costs of service charges to the town are not being currently reimbursed by the state. Cost of service charges are additional burdens to a town. In the case of Warwick, which is a small, rural community of 640 persons, the additional cost of service charge accounts for 7% of its total tax revenue.

Table 13

Operating Costs Per Town Employee by Service Function

Service Function	Total Sal.	Total Statutory Cost	Total Material Cost	Total Operating Cost	Total Existing Emply	Average Salary Emply.
Police	4,480	6,975	2,495	2,495	6	847
Fire	640	4,450	3,800	3,810	3	213
Highway	54,644	150,808	19,800	96,163	5	15,000
Sewage	N/A	N/A	N/A	N/A	N/A	N/A
Sanitation	7,131	8,280		1,149	1	7,131
Water Supply	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 14

List of Operating Costs of Warwick State Forest & Work Camp

Service Function	Capacity Excess	Determ. Deficient	Project-Induced Demand (Employees)	Local Response	Costs per Emply.	Total Costs
Police	None	5%	None	Yes	-	-
Fire	None	5%	None	Yes	-	-
Highways	None	10%	1	Yes	$15,000	$15,000
Sewage	N/A	N/A	N/A	N/A	N/A	N/A
Sanitation	None	5%	None	Yes	-	-
W. S.	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 15

List of Capital Costs of Warwick State Forest & Work Camp

Service Function	Capacity Excess	Determ. Deficient	Project-Induced Demand (Dollars)	Local Response	Capital Emply.	Ann. Costs
Police	None	-	$295	Yes	$295	$124
Fire	None	-	$190	Yes	$190	$190
Highways	None	10%	$3,418	Yes	$3,418	$3,418
Sewag e	N/A	N/A	N/A	N/A	N/A	N/A
Sanitation	None	-	-	Yes	-	-
W. S .	N/A	N/A	N/A	N/A	N/A	N/A

Fiscal Impact: Potential Residential Development

Another approach in examining state reimbursement funding to towns for state-owned land is to use the potential development analysis. This analysis looks at potential costs or benefits to a town if development occurs. In this case, the analysis will be applied to state-owned lands. And in the case of Warwick which because of its' location and current land use has not attracted much commercial development, we will use a residential development buildout process.

The buildout scenario takes into account: current town zoning frontage and setback requirements, topography, average yearly building permits, current town budget and potential town budget. Please see the Fiscal Impact Worksheet.

The work sheet makes several assumptions. It assumes that the town tax rate, level of state aid, cost per student, zoning, and non-school cost per residential property will remain constant. These factors are of course open to change. The tax rate may increase, the school cost per student may jump, state aid to the town may drop and non-school residential costs could increase. This is especially true if town residential growth prompted the construction of public utility service.

After completing the residential buildout scenario for the Town of Warwick, it was discovered that if state-owned lands were open to private residential development, the town would lose money. Currently for each dwelling unit in town, $1,071.00 is made for town tax revenues. Currently for every

public school child, the town must pay $1,917.00 for his or her education.

A completed buildout of residential units on state-owned land in Warwick would increase the dwelling units from 292 units to 685 units. With a 2.1 persons per unit ratio, 685 dwelling units would raise the towns total population to 1439 persons. The current ratio of students to dwelling units is .36 students. A town population of 1439 persons translates into 251 students, instead of the current 108 student population. At $1,917.00 cost per student, the potential buildout would result in a total school budget of $481,167.00. School costs to the town would rise faster than tax revenues. As a result the total school share of the town's budget would rise from a 52.3% level to a crisis level of 59%.

Of course this residential buildout analysis assumes many things, among them is the notion that the state lands would only develop as either residential or commercial. A mixed use buildout approach might be more realistic in larger, less rural communities where market pressures encourage commercial or industrial development. However in a community like Warwick where the land is zoned residential-agricultural and because of its remoteness from major market areas, residential development is more likely.

FISCAL IMPACT WORKSHEET; POTENTIAL RESIDENTIAL DEVELOPMENT

Current Zoning

Minimum lot size	2 acres
Frontage	300'

Computations from Buildout

Total buildable road frontage	393 lots
Total potential building lots under subdivision	N/A Houses
currently existing Currently existing:	295
Net Capacity:	685
Average number of building permits issued per year	12
Number of years before capacity is filled	57

Current Town Budget

Tax rate per thousand	$14.40/1000
Assessment ratio	.0144%
Total taxable property	$ 21,729,150.00
Total tax levy	$312,932.00
Total school budget	$208,117.00
Total state aid received	$ 71,204.00
School costs supported by property taxes (School tax levy)	$165,255.00
Number of students	108 students
Cost per student	$1,917.75
Total tax levy	$312,932.00
School tax levy	$165,255.00
Non-school tax levy	$147,677.00
Residential portion of total taxable property	$228,440.00
Non-school costs attributable to residential property	$107,804.00
Total housing units in town	292 units
Non-school costs per housing unit	$369.00

Potential Budget if Buildout Occurs

Projected revenues	$618,000.00
Projected school costs	-$418,167.00
Projected non-school resid. Costs	$234,570.00
Projected non-school,non-resid.costs	-$ 86,758.00
NET IMPACT	-$184,595.00
(state aid)	$120,292.00
	$ 64,303.00

State-owned lands within a town inhibit potential growth and development and reduce potential tax revenue for the town. The state assesses the value of the land parcels to reimburse the towns for their loss of potential tax revenue. To ascertain if the state reimbursement policy adequately covers town costs, we have used two methodologies - the cost of service approach and the residential buildout approach. We have used the Town of Warwick, Massachusetts for the case study; Warwick is more representative of the more rural communities that make up the population base of Franklin County.

The two different methodologies revealed differing results for Warwick. The cost of service approach revealed that the state reimbursement does not in fact adequately cover the towns cost of servicing the state-owned land and the facilities built on it. The residential buildout approach on the other hand, reveals that if the state lands were opened for residential development, the Town of Warwick would lose money instead of generating more tax revenue. Increased numbers of residential units means increased school enrollment. Increased school enrollment would translate into increased town expenditures. The current state reimbursement policy actually provides the Town of Warwick with more revenue than would the results of a potential residential buildout scenario.

CHAPTER 5
CONCLUSIONS

5.1 INVENTORY

As was stated in Section 2.4 the RPA's are the ideal agencies to collect and analyze stated-owned land inventories. The RPA's know the communities in their region, travel is relatively easy plus this would reduce the burden on Capital Planning and Operations which does not have the funding to computerize all of their data files.

The operation of data collection and analysis is a costly proposition, although needed in order to avoid future administrative and/or legal problems. It has been determined that the inventory, analysis of data and collection of maps for the state-owned lands in the 141 communities under the jurisdiction of the four western RPA's would require close to $200,000 in state funding. The formula used to determine the needed funding for the complete inventory and analysis is as follows:

It was decide after all the data was collected from the test communities to determine how much time it would take per community. Through the collection process it was decided to separate the larger communities for the smaller communities (the larger ones had more parcel thus more research needed to collect the correct data). A cut off point of 20,000 persons per community was used to break the larger communities for the smaller communities.

Region	Number of communities under 20,000 pop.	Number of communities over 20,000 pop.
Berkshire	30	2
Central Mass.	38	2
Franklin	26	0
Pioneer Valley	35	8
Total	129	12

Collection time: Communities under 20,000 4 days
Communities over 20,000 8 days

Collection costs: $40.00 per hour (average of charge of the RPA's)

129(comm.) * 4(days) * 7.5(hrs.) * $40.00/hr. = $154,800
12(comm.) * 8(days) * 7.5(hrs.) * $40.00/hr. = 28,800

Total $183,600

This cost would be a one time charge, with a small budget needed so that the original data in maintained properly, if

the Great and General Court mandates communities to report to all land holding changes concerning state-owned lands to the local RPA. A way to reduce the collection cost would be to have local assessors' office send copies of state-owned land tax cards. The funding would resolve discrepancies the and rescaling of maps to meet the specifications called for in Section 2.3, except for those properties that need to be surveyed or have deed research perfoemed.

As was stated above, this inventory and analysis should be done to avoid problems in the future and the investment costs are minimal compared to potential legal problems.

5.2 STATE REIMBURSEMENT POLICY

A number of conclusions and recommendations can be made regarding the state's policy for providing payments in-lieu-of-taxes for state-owned lands and facilities. Obviously, the sheer number of properties involved makes this a very complex task, which is compounded by a number of different approaches used to calculate the payment for different kinds of properties. While DOR appears to be doing a good job following the mandates of the legislation, there have been concerns expressed by some communities who feel their reimbursement is too low.

Much of this disagreement could be avoided if there was one, clear-cut state reimbursement policy so that all communities would realize they are being treated in a consistent and equitable fashion. Having different policies for certain types of MDC lands, which are different from other state-owned lands, naturally is bound to raise questions at the local level regarding the amount of reimbursement each community receives.

The fair cash value approach incorporated in M.G.L. Chapter 58 Sections 13 - 17B offers the most consistent method because it ties the payment to a current land value and applies a uniform tax rate to determine the amount of reimbursement. The land's value is calculated by DOR through a procedure described in Chapter 3 which takes into account the development potential of the property. Thus the payment to each community depends upon the value of the property calculated by an impartial agency. There are several modifications which could help to make this procedure more equitable.

- The payment should be stabilized so that communities do not experience a loss of revenue between years when the property's fair cash value is determined. This could be accomplished by using the tax rate existing during the year the revaluation

takes place.

- By using the three-year statewide average, some communities (where the local tax rate is higher) do not receive an amount equivalent to what private property is taxed at, while other communities reap a benefit if their local tax rate is lower than the statewide average. Use of local tax rates would insure more equity in the use of limited state funds. For MDC lands, the local tax rate (commercial rate if classification has been adopted) is used to calculate the payment.

- Because the formula is based on land values only, communities which host major state facilities may not receive adequate compensation. In some cases, it may be possible for a community to demonstrate higher costs than the payment received because of services provided to the facility; appeals should be allowed on the basis of costs of service, not just on the land's value as is currently the case.

Finally, if no other changes are made, the funding for this program should be increased to reimburse communities the full amount to which they are entitled by the existing formulas. Municipal costs are constantly rising, and all property owners should share equally in funding adequate services.

5.3 COST OF STATE-OWNED LANDS

This report developed two methods for assessing the adequacy of reimbursements for state-owned lands:

1. Cost of service comparison, and

2. residential build-out scenario comparison.

These methods should be applied based on the type of state land or facility and community, as demonstrated in the case studies (Chapter 4). In general, it appears that vacant land that has the potential to be developed should use a residential build-out comparison to determine the adequacy of reimbursements. However, for vacant undevelopable land(s) or land in best use, such as in Shrewsbury or Monterey, a cost of services comparison should be used.
These methods could be applied on a case-by-case basis when an individual community questions or appeals it's payment in

lieu of taxes from the Commonwealth. Furthermore, a community could use this analysis to predict the economic impacts of a state land or facility change of use (private or public). The regional planning agencies can potentially offer technical assistance to communities who wish to use these economic analysis.

Appendices

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF REVENUE
DIVISION OF LOCAL SERVICES

L. JOYCE HAMPERS
COMMISSIONER

EDWARD J. COLLINS, JR.
DEPUTY COMMISSIONER

BUREAU OF LOCAL ASSESSMEN
INFORMATIONAL GUIDELINE
RELEASE NO. 82-403

SUBJECT: Tax Mapping

GUIDELINE FOR TAX MAPPING

Table of Contents

BUREAU OF LOCAL ASSESSMENT

Jane H. Malme, Chief
Charles J. Hoen, Asst. Chief
Hotline: 617-727-0746

I. Introduction.

The principal responsibility of the assessor is to locate, inventory and appraise all real property in the municipality. Accurately drawn to scale, tax maps are an indispensable aid in this task. They indicate the location of the property, the size and shape of each parcel, and its relation to features that affect value. Tax maps provide a complete inventory of all land parcels and thus minimize the problems of omitted parcels and duplication of listing.

Tax maps are prepared by photogrammetry, a technical process using aerial photography obtained under controlled conditions, ground control and stereoplotting compilation to produce base maps, from which the final maps are prepared. A parcel inventory is then conducted. This includes deed research, a review of all available plans and surveys and, in the cases where deed descriptions are vague or indefinite, follow-up contact with the land owner to help in pinpointing property lines. Finally, two sets of index cards are prepared: one, filed alphabetically by the last name of the property owner, the other filed numerically by the parcel number. These cards contain additional information about the property.

The mapping system should include a set of detailed assessment maps covering the entire city or town, and an index map showing the location of each individual assessment map. Because they have a limited purpose, tax maps show only boundaries, streets and roads, and important physical features such as lakes and rivers. They show the boundary lines of each parcel of property and include the dimensions or the acreage. Each parcel is identified by a unique number.

The costs of preparing tax maps vary according to the size and complexity of the project. Factors such as the size of the community, the number of parcels, and the information available for use by the tax mappers influence the cost. Although tax maps require a substantial initial investment, they will last indefinitely if the maps are maintained.

Adequate tax maps are so fundamental to the valuation process that it is doubtful that any reasonable degree of assessment equality can exist in an assessing unit without them. Many old assessment maps were compiled from subdivision plats or other land records. If the boundary dimensions on existing maps do not agree with deed dimensions, a community should seriously consider remapping.

II. Preparation for the mapping project

Before undertaking a tax mapping project, assessors should make sure they understand the provisions of the law. They should then inventory the resources available for use by the tax mapping company and make basic decisions concerning the scope and timing of the project. It is suggested that the advice of a professional engineer or land surveyor be sought to assist in evaluating resources, preparing a request for proposals, and in overseeing the actual mapping program.

A. Inventory of existing resources

1. Present tax maps

   a. There may be sections of existing maps which are accurate.

   b. To evaluate maps see:

      Greulich, G., "Procedures to Check and Qualify Local Property Maps," 1980, available from the Massachusetts Division of Community Services, 100 Cambridge Street, Boston, MA.

2. Recent aerial photography, if taken according to the specifications for this project

3. Maps and plans maintained by the city or town engineering department

4. Copies of deeds in assessor's office

5. Documents on file at the county Registry of Deeds.

   a. Grantor - grantee indexes
   b. Deeds and land court records
   c. Plans of properties drawn by land surveyors

B. Basic decisions

   a. Are there any other municipal departments which might be interested in undertaking a joint mapping project?

   b. Are there any neighboring communities which might be interested in undertaking a joint project?

   c. What will be included on the maps?

   d. How will the maps be maintained?

   e. How will the mapping project be financed?

      1 Tax maps may be funded fifty percent per year for two years in accordance with G.L. Chapter 44, Section 7, Clause 18.

C. List of mapping companies

The Bureau of Local Assessment is compiling a list of mapping companies who have indicated their willingness to do business in accordance with these specifications. This list and a copy of the technical specifications for a tax mapping project will be provided to assessors on request.

D. Requests for proposal

A request for proposal should be sent to a number of mapping firms. It should include:

1. The name, address and phone number of the town official to contact

2. Information on the size and boundary limits of the community, the volume of annual transfers of property and the total number of parcels to be mapped

3. The proposed date of completion

4. Information required from the mapper.

   a. A list of recent clients with specific information on the number of parcels, the area, the completion date and the duration of the project

   b. Resumés of key personnel with identification of their current responsibilities

   c. Staff and equipment to be used for this project

   d. A narrative plan of procedure to be followed, with a time schedule

   e. A current financial statement

   f. References, including those of any subcontractors

   g. Total cost of the project

5. Special instructions such as:

   a. A request that companies include a sheet index on the U.S.G.S. Quadrangle Map (Scale of 1' = 2000') to show the varying scales proposed and the sheet numbering system

   b. Microfilming of records

   c. Progress reports and payment schedule

   d. Information on data which will be supplied by the town

6. Technical specifications

a. Model specifications may be obtained from the Bureau of Local Assessment

b. Specifications should be a separate enclosure

E. The contract

When the Board of Assessors receives the proposals, they should review them for adherence to the specifications; analyze the firm's qualifications; check current and prior clients; compare cost; and, where necessary, conduct personal interviews. Mapping firms provide professional services and therefore should be chosen on the basis of qualifications, as well as cost. The contract should incorporate by reference all requirements of the specifications and any additional provisions recommended by your town counsel or city solicitor.

All contracts for tax mapping must be submitted to the Bureau of Local Assessment for review and approval.

II. The major components of a mapping project

A. Aerial photography

1. Explanation

Aerial photography is the process of taking precision photographs from aircraft using special cameras. The pilot flies on predetermined flight lines specially designed to obtain the necessary coverage with the least number of photographs. Overlapping photographs provide complete coverage of each section of the community from at least two positions of the aerial camera for stereoplotting. Because aerial photography for tax mapping purposes must be accurate, skilled technicians using precision equipment under carefully controlled conditions must be utilized.

2. Specifications

a. The area of coverage shall be the legal limits of the town. Complete stereoscopic aerial photographic coverage shall also include an area of two hundred feet (200') beyond the exterior perimeter of the town boundary line

b. All aircraft should be maintained and operated in accordance with regulations of the Federal Aviation Administration and the Civil Aeronautics Board and operated by a well trained and experienced crew.

c. Photography should be taken at a scale appropriate for the final map scale

1) For a map scale of 1" = 400' the negative scale would be 1" = 2000'; for 1" = 100', the negative scale would be 1" = 500'

2) The altitude shall not be more than 5% from the required altitude above mean ground to achieve the specified scale of photography

d. The photographs should be taken without the obscuring effects of snow cover, tree foliage, flood waters, haze, smoke or long shadows

e. Flight lines should be the mapper's responsibility

1) They should be plotted and adhered to so as to provide the required photographic coverage

2) 60 percent forward or end lap, 30-40 percent side lap are recommended

f. Aircraft crabbing and tilt should be within reasonable tolerances

1) Crab not to exceed 3^{o}

2) Tilt not to exceed 4^{o}

g. Photography should be taken with a sufficient number of prominently marked ground control monuments to insure the final accuracy of the maps

h. Photography should be taken with a precision mapping camera

1) Zeiss RMK 15/23, Wild RC10 or Wild RC8 with a 6 inch focal lens

2) An appropriate anti-vignetting filter should be used

3) The camera must produce at least 4 fiducial marks on each negative for accurately locating the principal point of the photograph

4) The contractor must furnish a certificate of calibration, for the camera he proposes to use, from the National Bureau of Standards or the U.S. Geological Survey which is not more than 3 years old.

i. Film must be fine-grain, high speed photographic emulsion on a dimensionally stable safety base. Outdated film must not be used.

j. The processing of all exposed photographic film shall result in negatives free from chemical and other stains, containing normal and uniform density and color tone.

1) The film should not be rolled tightly on drums or in any way stretched, distorted, scratched or marked and shall be free from finger marks, dirt or blemishes

2) Each negative should be clearly labelled with the date and scale of the photography, the camera data, the film roll number and sequential negative numbers

k. Ownership of the aerial negatives should remain with the town

1) The mapper should not make additional copies of the aerial negatives without the written approval of the town

2) Negatives should be stored by the mapper under proper conditions of controlled temperature and humidity

l. Contact prints of the original negatives should be prepared on double weight semi-matte paper and delivered to the town

m. The mapper should prepare a photo index by laying out prints made from all negatives of the aerial photography taken and accepted for the project

1) The prints should be carefully matched and oriented

2) Photographic copies of the index should be made at a scale not less than 1/3 the negative size

3) The north arrow, the scale of the original photography, the scale of the index, the date of photography, the town name, the type of camera and lens and the name of the contractor should be shown on each index

4) Indexes should be printed on double weight, semi-matte photographic paper and should be no larger than 24" x 36"

5) Two copies of the index shall be delivered to the town

B. Control

The mapping should be constructed from the Massachusetts State Plane Coordinate System using existing and supplemental ground control and analytical aerotriangulation methods. The ground control survey data for the compilation of planimetric maps is limited to horizontal control.

The quantity of horizontal control must be sufficient to ensure that the base maps will meet National Map Accuracy Standards. Photographic targets used to mark horizontal control points shall be of sufficient size and material to assure that measurable images of the targets will appear on photographs of the smallest scale used for aerial triangulation and/or compilation of base manuscripts.

C. Base maps

Although precision aerial photography is used as the foundation for preparing the tax maps, certain scale discrepancies occur due to inherent radial and topographic distortions in the uncontrolled aerial photographs. To eliminate these discrepancies on the final maps, base manuscripts are compiled using special instruments with the control secured under these specifications.

Base maps are large, color coded drawings compiled on matte surface, stable based polyester drafting film with a minimum thickness of 0.004 inches. They provide the framework upon which the final tax maps are plotted. Features shown shall include but not be limited to:

(a) All roads and trails
(b) Railroads
(c) Viaducts and bridges
(d) Main drainage features including streams, rivers, ponds, lakes, canals, reservoirs and swamps
(e) Wooded areas, orchards, and tree plantations
(f) All cross country power and transmission lines
(g) All identifiable cross country underground lines such as buried cables and pipe lines

(h) Cemeteries, quarries and borrow pits
(i) All main and minor fences, walls, tree lines and field boundaries

Base maps must meet National Map Accuracy Standards. These state that ninety per cent (90%) of all definable planimetric features shall be plotted within 1/30 of an inch of their true coordinate positions. Base maps are either the same scale as, or larger than the finished maps. All manuscripts should be delivered to the town; all work in plotting property data should be done on overlays to the manuscripts.

There are two types of base maps. "Orthophotos" are actual prints of the aerial photography from which the distortions, which occur because of changes in the elevation of the topography, have been removed. Planimetric maps are two dimensional line drawings drawn to scale on which physical and cultural features are symbolized. Each type of base map has advantages, depending on local needs and requirements. The orthophoto map, which displays a photographic image of all features, often provides the most economical means of subsequently producing the property map as an overlay. As changes occur, however the photo image will appear increasingly out of date. By contrast, the line drawn maps which show symbols of selected features, are not as easy to interpret, but are less subject to obsolescence, than orthophotos.

D. Deed research and plotting

No matter how accurately a base map is prepared, final maps will be inaccurate if improper research procedures are used. Preparing tax maps involves researching all the deed records and gathering together all known surveys, highway maps and town and state maps.

Deed searching should be conducted to determine the deed, will, or other instrument of conveyance for every parcel of property in the town. The deed research should be coordinated with the current assessment roll. A copy of the current deed, marked with the parcel identification number, should be on file (or microfilm) in the town.

If no copies of deeds are available it is suggested that the mapper provide them as part of the mapping project.

Deeds should be plotted using all available resources. Boundary dimensions should match those of adjoining parcels. If there is a problem, the mapper must attempt to reconcile it using the aerial photographs and possibly contacts with the owners.

2. Errata list

If any parcel cannot be logically and correctly located or its ownership determined, it should be recorded on an errata list along with all accumulated data concerning the parcel. Any property for which no instrument of conveyance can be found should also be included. The contractor has the responsibility to report these problem areas to the town and to attempt to resolve them with the assistance of the town. The contractor normally is not entitled to extra compensation for this work except where the town orders actual field measurement or surveys to resolve the problem areas. The errata list at the completion of the project should not usually exceed five percent of the total number of parcels in the town.

E. Tax maps

1. Explanation

Tax or cadastral maps are special purpose maps showing the boundaries of all real property parcels within a community. They are prepared as overlays to the base maps.

The tax map system consists of a set of detailed maps covering the entire community and an index map showing the location of each individual tax map. Each map sheet or page covers one specific area or section which is assigned a unique number.

State Plane Coordinate grid lines should be the boundary lines of the area covered by each map sheet. When it is necessary to show portions of a single parcel on two or more map sections, the parcel and its match lines should be clearly labeled on each map sheet with a note as to where the remainder of the parcel appears.

2. Sheet size and format

a. All completed tax map sheets shall be prepared on stable based polyester drafting film with a minimum thickness of 0.004 inches, or material of equivalent quality.

b. Map sheet size shall be twenty-four inches (24") high by thirty-six inches (36") wide overall. There shall be a "neat" image area of twenty inches (20") by thirty inches (30").

c. The layout of map sheets should be standardized. Basic map information should be shown at the bottom of the map sheet. It should include the dates of the aerial photography and the original maps, the scale, the legend, the index diagram, a space for revision dates, the name of the mapper and the name of the town.

3. Drafting standards and quality

a. Maps shall use standarized symbols.

b. All lettering and numbers shall be drawn using mechanical lettering equipment such as "Leroy" templates or an approved equal. Lettering sizes shall not be less than "Leroy" template size 80.

c. All line work shall be uniform and consistent as to width and symbolism.

d. Only "Pelican TN" ink or an approved equal shall be used. "Stick-up" or "paste-on" drafting is not acceptable.

4. Scale

The proper scale is one which covers the largest possible area and at the same time shows the necessary detail. Map scales should generally be as follows:

Rural areas - 1" = 400' or 1" = 200'; areas having an average per parcel acreage of less than 100 acres and more than fifty percent of the parcels average one acre or more.

Semi-rural areas - 1" = 100' or 1" = 50'; areas having a concentration of parcels of one acre or less.

Dense areas - 1" = 50'; areas where twenty percent or more of the parcels have frontage of forty feet or less.

However, nothing shall prohibit the mapping of an area at a larger scale than that indicated above. (i.e., 1" = 100' in place of 1" = 200').

5. Dimensions and acreage

Dimensions of property lines and acreages (for parcels of one acre or more) shall be shown on the maps. Dimensions shall be those obtained from the deeds. Where no such dimensions exist, a scaled dimension may be shown followed by the letter "s" to indicate that the dimension is scaled. Where deed dimensions do not agree with the amount of distance available on the ground as plotted on the base manuscripts, the discrepancy should be noted by placing the letter "d" following the deed dimension and then showing a scaled dimension. This should only be done where there is a significant variation.

6. Information to be shown

a. Boundaries of individual parcels
b. Parcel (lot) numbers
c. Parcel areas for parcels of one acre or more. Parcels of less than one acre will have all dimensions shown
d. The original lot lines of filed subdivisions should be shown by means of a fine dashed line so that they will be readily visible but subdued from the rest of the data on the maps. Lot numbers from the subdivision plans should be shown in a manner distinct from other numbers on the maps.
e. School, fire, water or other service district lines with their designations
f. The location and designations of streets, highways, roads, railroads, rivers, lakes etc.
g. Major easements and rights-of-way
h. Popular names of wholly tax exempt property
i. Adjacent map numbers
j. X and Y coordinates from the Massachusetts State Plane Coordinate System.
Massachusetts State Plane Coordinate grid intersections are to be plotted at 5" intervals and shown throughout the "neat area" as white lines (1" overall).

7. Optional information

a. Location of improvements
b. Street number
c. Wetlands

8. Parcel numbering

Every parcel of land should be assigned a unique parcel identification number. The parcel number will consist of three parts: the map number, the block number and the lot number. Block numbers can be up to two digits in length. Lot numbers initially consist of a maximum of two digits. The numbering of blocks and parcels begins in the upper left corner and proceeds consecutively in a clockwise direction.

If parcels are subdivided after the property map has been numbered, each piece of land then carries the same parcel number as before, but with a suffix. The retained parcel is designated by the suffix 1, while the sold off portions are suffixed starting with the number 2. A maximum of three digits to the right of the decimal point in the lot number will be allowed. After that it may be necessary to renumber the entire block.

Another system of parcel numbering is to use the geographic coordinate locator number as the unique parcel identification number. Coordinate identifiers provide superior information about a parcel's geographic location and can be used directly in computerized sales ratio analysis and property appraisal. The geographic coordinate based system derives its numbers from a combination of the easting (X) and northing (Y) coordinates from the Massachusetts State Plane Coordinate System recorded to the nearest ten feet of the approximate visual center of each parcel. The easting reading is always written before the northing reading. The coordinate locator numbers can be measured from the original stable map using an engineer's scale or more rapidly with an electronic digitizer.

Assessors are urged to have the X and Y coordinates from the Massachusetts State Plane Coordinate System placed on each map sheet, even if they choose the more conventional block and lot system of numbering. As long as the X and Y coordinates are shown on each map, the coordinate locators, may be put in place in the future at a moderate cost.

For further explanation the following booklet is available from:

Massachusetts Division of Community Services
100 Cambridge Street, Room 904
Boston, Ma. 02202

Foster, R.W., "Guidelines for the Assignment of Parcel Index Numbers and Parcel Locator Numbers, 1980.

IV. Other components of the tax mapping project

A. Index

Two sets of index cards should be prepared as part of the tax mapping program. One set should be filed alphabetically by the owner's last name. These cards should give the owner's name and current mailing address, the location of the property, the parcel number, and the book and page of the deed. The other set should be in numerical order by the parcel numbering system used. These cards give the parcel number of the property; the coordinate locator number (if these have been included on the maps); the property's location; its area and/or dimensions; the subdivision lot number and name; the school, improvement or service district; and the ownership history (showing the names, addresses and the book, page and date of conveyance) starting with the owner at the time the property map was prepared. A computer listing may be used as an alternative to the card system.

B. Public review

Provisions should be made for a public review session to enable taxpayers to view the maps for accuracy. Representatives of the tax mapping firm should be available to hear complaints. The contractor should correct in ink on the original sheets all errors of delineation brought to their attention by the Board of Assessors or by property owners. New prints should be furnished without additional charge.

C. Training for assessors

Provisions for the training of assessors and other town officials in the use and maintenance of the tax map system shall be included in the contract. The date, duration and place of the training as well as the number of personnel to be trained should be specified.

D. Maintenance

To protect the initial investment of the community, tax maps and index cards must be updated at least annually. Maintenance involves recording description changes and making map corrections. It may even include remapping certain areas at a larger scale to satisfactorily depict new subdivisions.

Most property transfers do not require map revisions. On receiving a copy or an abstract of the deed from the county clerk, assessors make the changes on the affected index cards. When property transfers do require map revisions, it is recommended that most assessors seek assistance. Not only must new boundary lines be drawn, but also new parcel numbers must be assigned and new acreage or dimensions must be computed.

Most tax mapping companies offer annual maintenance and updating services at a reasonable cost. In some communities, the town engineer may be able to make necessary changes.

V. Glossary

Assessment Roll - an official listing of all the parcels of real property located in the community, giving the name of the taxable owner, the location and the assessed valuation of the land and improvements. It is commonly known as the valuation book.

Block - a segment of a city or town preferably bounded by natural boundaries such as streets, roads, waterways and other prominent features.

Book and Page - the number of the book at the County Registry of Deeds which contains the complete deed, and the number of the page on which the deed is found.

Crab - the amount of sideway twist in a series of photographs resulting from high wind or misalignment. This is usually expressed in degrees of deviation from the correct direction.

Deed - a legal instrument in writing by which the title to land is transferred from one person to another.

Digitizers - precision electronic machines which can measure the position (using the X and T axis) of points on maps or drawings. These positions are used to generate coordinate locator numbers and to calculate area acreage.

End Lap - the amount of overlap between consecutive aerial photographs. It is usually expressed as a percent.

Errata List - a compilation of the problem or unsolvable situations accumulated during the tax mapping program.

Flight Lines - rows or lines of aerial photography. The lines are specially designed to obtain the necessary overlapping coverage with the least number of photographs. They are the pilot's guide when flying for aerial photography.

Grantor and Grantee Index - separate books listing the names of all buyers and sellers of land alphabetically and the book and page number of all deeds recorded in the county Registry of Deeds. The grantee books are indexed by the buyer's last name.

Ground Control - carefully established markers visible in aerial photography which are used to ensure accuracy in preparing base manuscripts. Control points may be derived from the following sources.

a. United States Coast and Geodetic Survey monuments and points
b. United States Geological Survey monuments and points
c. Massachusetts Geological Survey monuments and points
d. Prominent landmarks
e. Existing surveys
f. New surveys

Index Map - a map prepared to serve as a key by which a section map may be readily located.

Lot - a distinct portion of land in one ownership.

Massachusetts State Plane Coordinate System - describes and defines a mathematical system of locating points. It is a projection of the curved surface of the earth on a flat surface over which a coordinate grid is laid. The X coordinate is the easting, the Y coordinate the northing reading.

Orthophoto - map is a scale representation of the earth's surface depicted by a photographic image.

Photogrammetry -the making of maps from overlapping aerial photographs using stereoplotting instruments under rigidly controlled conditions.

Planimetric - a line drawing .

Plat - a map intended to show the division of land into lots or parcels.

Section Map - a map covering a specific area which may be mapped on one sheet or page.

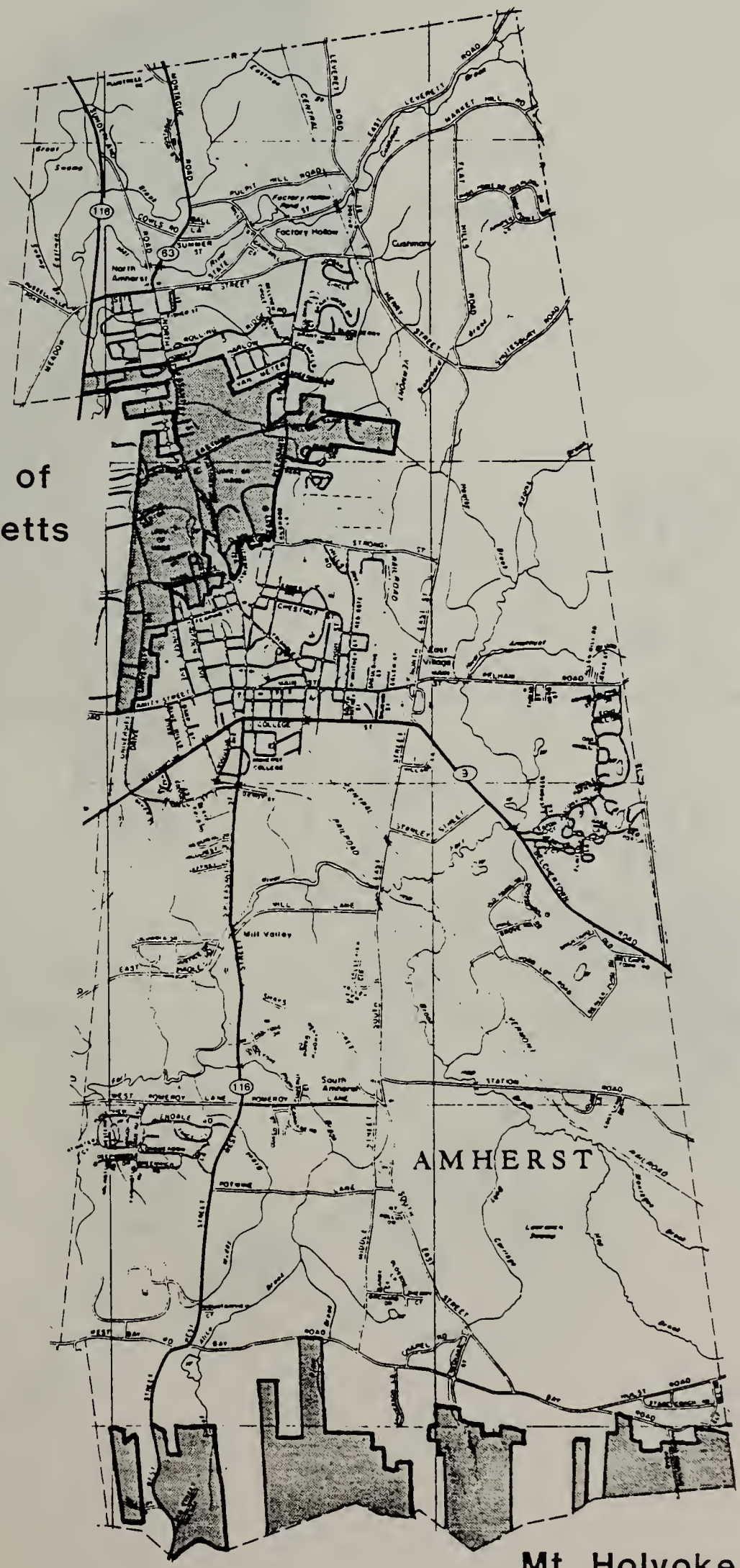
Side Lap - the amount of overlap between adjacent lines of aerial photography. It is usually expressed as a percent.

Stereoplotting Instruments - are precision stereoscopic machines used to prepare base manuscripts from aerial photographs.

Tilt - the angular departure of the aerial camera axis from a vertical line at the instant of exposure. It is usually expressed in degrees.

INVENTORY OF STATE OWNED LAND

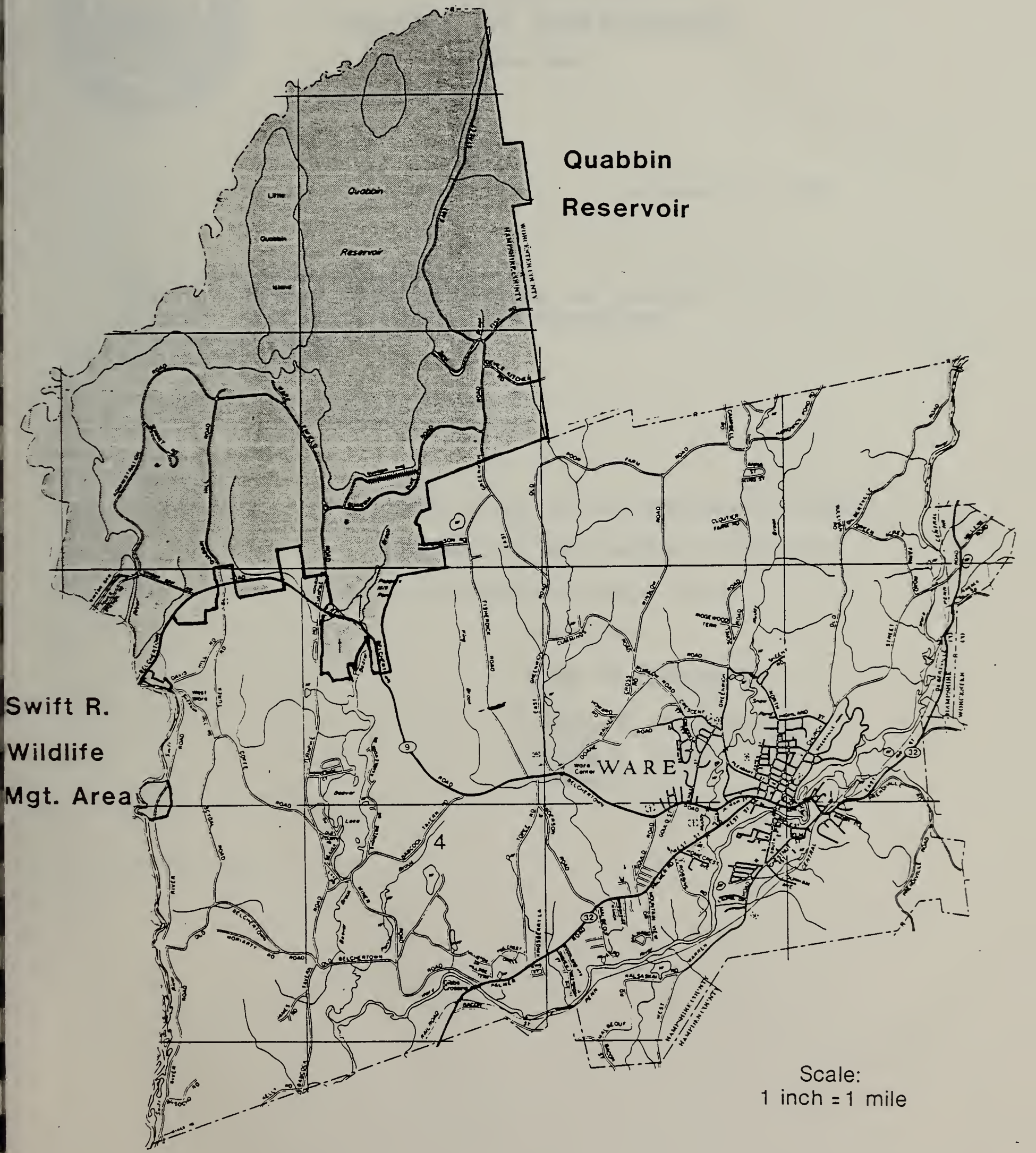
Town of Amherst



Scale:
1 inch=1 mile

INVENTORY OF STATE OWNED LAND

Town of Ware



Town of Ware

BOARD OF ASSESSORS

WARE, MASS.

December 9, 1982

The Commonwealth of Masschusetts
Executive Office of Administration and Finance
Division of Capital Planning and Operations
1 Ashburton Place
Boston, MA 02118

Attention: Mr. Mark E. Watson
Real Property Planner

Gentlemen:

In response to your recent letter we are enclosing a listing of the state-owned buildings and land parcels within the Town of Ware as well as the completed data form.

Sincerely,

BOARD OF ASSESSORS

Joseph S. Knapp

Joseph S. Knapp
Chairman

JSK/ba

Enclosures 2

State-Owned Buildings and Land Parcels

Within the Town of Ware

Commonwealth of Massachusetts Ware, MA 01082		
Land taken for Public Works Dist. 2	3.13 Acres	$ 5,780.
Commonwealth of Massachusetts MDC Div. of Water Supply 20 Somerset St. Boston, MA		
Land Dist. 4 & 5	1,359.87 Acres	$113,991.
Adelard Murray land	2.20 Acres	5,600.
Adelard Murray land	.06 Acres	2,370.
Adelard Murray land	.43 Acres	3,600.
Ludwik Pisarczyk land	1.96 Acres	5,500.
Ludwik Pisarczyk land	.15 Acres	2,620.
W. & H. Vadnais alnd	38 Sq.Ft.	--
Michael Pisarczyk land	.43 Acres	3,600.
Unknown public road-Parcel #6	1.40 Acres	--
Unknown public road-Parcel #4	2,15 Acres	--
Unknown public road-Parcel #9	.63 Acres	--
Unknown public road-Parcel #12	.14 Acres	--
N. & L. Brassard land	.13 Acres	2,550.
Bondsville Realty land	.15 Acres	2,620.
Bondsville Realty land	.25 Acres	--
Dept. Public Works (Rt. 9)	.13 Acres	--
Comm. of Mass. (formerly B&ARR)	18.20 Acres	11,710.
J. & M. Handzel land	1.95 Acres	5,480.
Arthur L. Johnson land	.12 Acres	2,530.
Arthur L. Johnson land	.05 Acres	--
Commonwealth of Massachusetts Mass. Div. of Fisheries & Game 100 Cambridge St. Boston, MA		
Cady land-Swift River Wildlife Management	34.00 Acres	$ 15,060.
Commonwealth of Massachusetts Dept. of Public Works Greenfield, MA 01301		
Gilbertville Rd land	30,700 Sq.Ft.	$ 5,100.
Commonwealth of Massachusetts Div. of Fisheries & Wildlife 100 Cambridge St. Boston, MA		
Bondsville Rd	300.00 Acres	$ 79,480.

Commonwealth of Massachusetts
National Guard Armory
Palmer Rd
Ware, MA 01082
Palmer Rd — 3.50 Acres $427,490. Land & Building

Quabbin Cemetery
Belchertown Rd
Ware, MA 01082
Belchertown Rd — 25.00 Acres $ 18,220.

INVENTORY OF STATE OWNED LAND

Town of Warwick

STATE OWNED LAND
IN THE PIONEER VALLEY
****

COMMUNITY		DEPARTMENT OF ENVIRONMENTAL MANAGEMENT		DEPARTMENT OF REVENUE			
					1986	1987	DIFFERENCE 1986-1987
NAME	TOTAL ACRES	STATE OWNED LAND ACRES	COMMENTS	STATE OWNED LAND ACRES	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND
AGAWAM	15,566	836		823	$94,800	$37,866	($56,934)
AMHERST	17,758	2,603		1,730	$276,415	$204,583	($71,832)
BELCHERTOWN	34,668	57,939	QUABBIN WATERSHED EXTENDS INTO PELHAM, NEW SALEM, SHUTESBURY, ATHOL, BARRE AND HARDWICK (56,000 ACRES).	1,958	$164,492	$135,968	($28,524)
BLANDFORD	34,183		SEE CHESTER (CHESTER ST. FOREST) SEE OTIS (TOLLAND STATE FOREST)	2,036	$16,048	$11,600	($4,448)
BRIMFIELD	22,588	4,000	BRIMFIELD STATE FOREST EXTENDS INTO MONSON AND WHALES (4,000 ACRES).	1,943			$0
CHESTER	23,788	5,200	CHESTER ST. FOREST EXTENDS INTO BLANDFORD (4,000 ACRES); CHESTER WILDLIFE EXTENDS INTO HUNTINGTON AND WORTHINGTON (1,200 ACRES).	2,356	$21,812	$17,390	($4,422)
CHESTERFIELD	20,007	1,526		1,838	$17,207	$16,452	($755)

COMMUNITY		DEPARTMENT OF ENVIRONMENTAL MANAGEMENT		DEPARTMENT OF REVENUE			
NAME	TOTAL ACRES	STATE OWNED LAND ACRES	COMMENTS	STATE OWNED LAND ACRES	1986 REIMBURSMENT FOR STATE OWNED LAND	1987 REIMBURSMENT FOR STATE OWNED LAND	DIFFERENCE 1986-1987 REIMBURSMENT FOR STATE OWNED LAND
CHICOPEE	15,260	574	CHICOPEE ST. PARK EXTENDS INTO LUDLOW (574.3 ACRES).	0	$0	$0	$0
CUMMINGTON	14,763			737	$1,341	$1,465	$124
EAST LONGMEADOW	8,335			0	$0	$0	$0
EASTHAMPTON	8,674		ACADIA?	3	$456	$436	($20)
GOSHEN	11,326	1,517	DAR EXTENDS INTO ASHFIELD (1517 ACRES).	14,207	$21,088	$20,163	($925)
GRANBY	17,976			1,360	$33,911	$25,728	($8,183)
GRANVILLE	27,656	1,509	GRANVILLE ST. FOREST EXTENDS INTO TOLLAND (1509 ACRES).	1,509			$0
HADLEY	15,841	312	SKINNER ST. PARK EXTENDS INTO SOUTH HADLEY (312 ACRES)	892	$281,101	$262,851	($18,250)

COMMUNITY		DEPARTMENT OF ENVIRONMENTAL MANAGEMENT		DEPARTMENT OF REVENUE			
					1986	1987	DIFFERENCE 1986-1987
NAME	TOTAL ACRES	STATE OWNED LAND ACRES	COMMENTS	STATE OWNED LAND ACRES	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND
HAMPDEN	12,569			0	$0	$0	$0
HATFIELD	10,750			6	$611	$584	($27)
HOLLAND	8,356			0	$0	$0	$0
HOLYOKE	14,586	138		5	$27,793	$19,429	($8,364)
HUNTINGTON	17,137	755	HUNTINGTON ST. FOREST EXTENDS INTO MONTGOMERY (726 ACRES).	1,260	$17,461	$16,695	($766)
LONGMEADOW	6,126			0	$0	$0	$0
LUDLOW	18,184	111	SEE CHICOPEE (CHICOPEE ST. PARK)	175	$8,946	$8,554	($392)
MIDDLEFIELD	15,444	1,701	SEE PERU (PERU ST. FOREST).	2,050	$21,732	$20,253	($1,479)

COMMUNITY		DEPARTMENT OF ENVIRONMENTAL MANAGEMENT		DEPARTMENT OF REVENUE			
					1986	1987	DIFFERENCE 1986-1987
NAME	TOTAL ACRES	STATE OWNED LAND ACRES	COMMENTS	STATE OWNED LAND ACRES	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND
MONSON	28,614		SEE BRIMFIELD (BRIMFIELD STATE FOREST); MONSON STATE HOSPITAL NOT SHOWN.	1,001	$65,888	$46,803	($19,085)
MONTGOMERY	9,650			88	$1,068	$1,022	($46)
NORTHAMPTON	22,840	16	ACADAIA?	522	$207,834	$112,474	($95,360)
PALMER	20,946		MONSON STATE HOSPITAL NOT SHOWN.	344	$34,034	$13,115	($20,919)
PELHAM	17,000		SEE BELCHERTOWN (QUABBIN WATERSHED).	1,196	$17,887	$12,624	($5,263)
PLAINFIELD	13,645		SEE HAWLEY (HAWLEY ST. FOREST).	1,189	$15,651	$14,350	($1,301)
RUSSELL	11,483			1	$244	$233	($11)
SOUTH HADLEY	11,711	20		520	$13,365	$9,340	($4,025)

COMMUNITY		DEPARTMENT OF ENVIRONMENTAL MANAGEMENT		DEPARTMENT OF REVENUE			
					1986	1987	DIFFERENCE 1986-1987
NAME	TOTAL ACRES	STATE OWNED LAND ACRES	COMMENTS	STATE OWNED LAND ACRES	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND
SOUTHAMPTON	18,534			8	$3,561	$3,405	($156)
SOUTHWICK	20,267			3	$2,683	$1,751	($932)
SPRINGFIELD	21,147	73		68	$59,026	$51,992	($7,034)
TOLLAND	20,977	722	SEE GRANVILLE (GRAN. ST. FOR.); SEE OTIS (TOLLAND ST. FOREST); TOLLAND ST. FOREST EXTENDS INTO OTIS (722 ACRES).	3,255	$62,107	$60,191	($1,916)
WALES	10,225		SEE BRIMFIELD (BRIMFIELD STATE FOREST). 20106 23603	1,309	$20,947	$15,990	($4,957)
WARE	25,459		SEE BELCHERTOWN (QUABBIN WATERSHED).	334	$8,480	$8,108	($372)
WEST SPRINGFIELD	11,233			0	$0	$0	$0
WESTFIELD	30,368	32		502	$119,329	$66,790	($52,539)

COMMUNITY		DEPARTMENT OF ENVIRONMENTAL MANAGEMENT		DEPARTMENT OF REVENUE			
					1986	1987	DIFFERENCE 1986-1987
NAME	TOTAL ACRES	STATE OWNED LAND ACRES	COMMENTS	STATE OWNED LAND ACRES	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND	REIMBURSMENT FOR STATE OWNED LAND
WESTHAMPTON	17,508			0	$0	$0	$0
WILBRAHAM	14,259			200	$18,174	$17,376	($798)
WILLIAMSBURG	16,428	35	SEE CONWAY (CONWAY ST. PARK).	79	$906	$866	($40)
WORTHINGTON	20,453	175	SEE PERU (PERU ST. FOREST); SEE CHESTER (CHESTER WILDLIFE).	1,425	$13,879	$13,270	($609)
TOTALS	754,288	79,794		46,930	$1,670,277	$1,249,717	($420,560)

SOURCES: DEPARTMENT OF REVENUE
1983 OUTDOOR RECERATION AND OPEN SPACE INVENTORY, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
1984 BASE DATA REPORT, PIONEER VALLEY PLANNING COMMISSION

December, 1986

TABLE_____

PRELIMINARY INVENTORY OF
STATE OWNED LAND AND FACILITIES,
FRANKLIN COUNTY, MASSACHUSETTS

Town	State Reimbursement	Number of Acres/Parcel	Description of Parcel	Local Assessment Estimate Land Value	Building Value
Ashfield		91.60ac	DAR State Forest		
	$ 3,580	71.ac	Poland Brook Wildlife Management Area		
Bernardston		2ac	DPW Garage: Sheds, 2 pumps & tanks	$ 53,600	$189,920
		7.33ac	Vacant Land I-91	$ 14,150	
Buckland		60ac	Hawley State Forest-DEM		
	$ 2,666	92ac	Buckland State Forest-DEM		
		5.26ac	DPW: Land, Office Building, Garage, Salt Sheds	$ 18,800	$ 80,700
Charlemont		1,342.5ac	Mohawk Trail State Forest: Campground, Swimming Facilities, Buildings	$238,000	$170,000
	$ 4,826	.6ac	Deerfield River Public Access	$ 10,000	
			Mohawk Trail - Scott's Bridge: Rest area; 5 acres, Shed for sand	$ 20,000	$ 1,300

Town	State Reimbursement	Number of Acres/Parcel	Description of Parcel	Local Assessment Estimate Land Value	Building Value
Charlemont		1ac	Land in Center of Town	$ 4,000	
Colrain	$14,633	1,451ac	Catamount State Forest		
		795ac	H.O. Cook State Forest		
Conway	$24,731	2,103ac	Conway State Forest		
		107ac	South River State Forest		
		454ac	Poland Brook Wildlife Management Area		
Deerfield	$26,465	547.45ac	Sugarloaf State Reservation		
		363.90ac	UMASS Mt. Sugarloaf		
		12.5ac,	DPW, Route 116 Bypass: 2 Chemical Storage Sheds, 3 Wood Frame Sheds, Metal Field Office Trailer	$147,700	$197,500
Erving	$15,294	- : 2,520.7ac (Town Est.)	Erving State Forest: Forestry Building	$653,200	$ 90,500

Town	State Reimbursement	Number of Acres/Parcel	Description of Parcel	Local Assessment Estimate Land Value	Building Value
Erving		9.1ac	DPW on Route 2: Garages, Chemical Storage Sheds, Tanks, Fence, Paving, etc.	$ 31,600	$184,700
		1.4ac	Environmental Management	$ 16,400	
Gill	$ 1,634	4.2ac	Public Access Connecticut River	$ 36,000	
		10.61ac	Route 10	$ 8,480	
Greenfield	$ 1,615	.48ac	Mental Health Center, Sanderson Street	$ 12,000	$672,400
		39,440sq.ft.	Skating Rink, Barr Avenue	$ 10,900	$1,346,500
		9,095sq.ft.	Land on Barr Avenue	$ 1,600	
		1.42ac	Land on Cottage Street	$ 3,300	
		160sq.ft.	Land on Cottage Street	$ 100	
		1.27ac	Off Interstate I-91	$ 12,300	
		1,400sq.ft.	Off Interstate I-91	$ 1,100	
		10,910sq.ft.	Newton Street, Mohawk Trail	$ 1,900	
		.04ac	S. Shelburne	$ 1,000	
		20,000sq.ft.	Hope Street, Mass. State Armory	$ 12,500	$263,800

Town	State Reimbursement	Number of Acres/Parcel	Description of Parcel	Local Assessment Estimate Land Value	Building Value
Greenfield		.33ac	Prospect Street, Mental Health	$ 15,900	$361,000
		10.45ac	Greenfield Community College	$ 46,800	$11,812,400
		.63ac	College Drive	$ 8,500	
		.9ac	Mohawk Trail: Highway Shed & Garage	$ 10,100	$ 37,800
Hawley	$38,898	8,000ac	Mohawk Trail, Hawley & Savoy State Forest		
		98ac	UMASS Foundation		
Heath	$ 7,842	744.4ac	H.O. Cook State Forest		
Leverett	$ 2,316	32.7ac	UMASS Forest		
		167ac	Mt. Toby State Reservation		
Leyden	$ 700	59.63ac	Leyden State Forest		

Town	State Reimbursement	Number of Acres/Parcel	Description of Parcel	Local Assessment Estimate Land Value	Building Value
Monroe	$21,367	2,740ac	Monroe State Forest		
Montague	$15,567	640ac	Montague State Forest		
		148.4ac	Bitzer State Fish Hatchery: 4 Buildings		$100,000
New Salem	$ 5,643	219ac	Federation, New Salem & Shutesbury State Forest		
		10,000ac	Metropolitan District		
Northfield	$17,629	2,055ac	Northfield State Forest		
		162ac	Pauchaug Brook Wildlife Management Area		
Orange	$ 7,589	732ac	Orange & Warwick State Forest		
		3.4ac	DPW on Route 122: Garage, Warehouse, & Chemical Storage Shed	$ 18,160	$ 99,432
		62ac	Commonwealth of Massachusetts Vacant Land in West Orange	$ 22,600	

Town	State Reimbursement	Number of Acres/Parcel	Description of Parcel	Local Assessment Estimate Land Value	Building Value
Orange		31.5ac	Metropolitan District Water Commission		
Rowe	$ 3,911	255.44ac	Rowe State Forest		
		74.55ac	Potter Road	$ 58,661	
		59.49ac	Potter Road	$ 46,811	
		121.3ac	Monroe Bridge Road	$ 95,448	
		.1ac	Off Potter Road	$ 100	
Shelburne	$ 2,705	49ac	Shelburne State Forest		
		25.7ac	Wilcox Hollow State Forest		
		2.5ac 244sq.ft.	DPW Near Old Albany Road: Shed, Houses, Radio Equipment	$ 7,250	$ 5,000
Shutesbury	$ 7,667	3.14ac	UMASS State Forest		
		126.8ac	Shutesbury State Forest		
		586.6	New Salem State Forest		

Town	State Reimbursement	Number of Acres/Parcel	Description of Parcel	Local Assessment Estimate Land Value	Building Value
Sunderland	$22,283	43.49ac	Sunderland Fish Hatchery		
		726.20ac	UMASS Mt. Toby Forest		
		256ac	Mt. Toby Reservation		
		25.5ac	Green Swamp		
Warwick	$84,709	10,119ac	Warwick & Erving State Forest		
			Mass. Correctional Institute:		
			Several Buildings		$2,000,000
			Laurel Lake Park:		
			Pavillion, Bathhouse 1,000 sq.ft., Shed		$ 20,000
			Mt. Grace Park:		
			2 Garage/Office Combo, Toilet Building		$ 20,000
			Fire Tower & View	$ 40,000	
Wendell	$89,917	7.115ac	Wendell State Forest		
		412ac	Metropolitan District Commission	$171,100	
		45ac	DPW Land and Buildings	$1,100,000	